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IC 36-2-11-16.5 Requirements for instrument or document presented for recording

Sec. 16.5 (a) This section does not apply to the following:

(1) A judgment, an order, or a writ of a court.
(2) A will or death certificate.
(3) A plat.
(4) A survey.

(b) The county recorder may receive for record an instrument or a document if:

(1) the instrument or document consists of at least one (1) individual page measuring not more than eight and one-half (8 1/2) inches by fourteen (14) inches that is not permanently bound and is not a continuous form;

(2) the instrument or document is on white paper of at least twenty (20) pound weight and has clean margins:

(A) on the first and last pages of at least two (2) inches on the top and bottom and one-half (1/2) inch on each side; and

(B) on each additional page of at least one-half (1/2) inch on the top, bottom, and each side; and

(3) the instrument or document is typewritten or computer generated in black ink in at least 10-point type.

IC 36-2-11-15 Instruments that may be received for record or filing; name of person or governmental agency that prepared instrument

I affirm under penalties of perjury, that I have taken reasonable care to redact each social security number in this document unless required by law. This instrument is prepared by:

_____ (printed name of individual)

OPERATIONS AND MAINTENANCE MANUAL
THE RIDGE ON WILLIAMS CREEK

PROJECT SITE:
11.63 Acre Residential Development
Marion County, Indianapolis, IN

PREPARED FOR:
Thomas Kretz
TMK Development, LLC
9335 Forgotten Creek Drive
Indianapolis, IN 46260

PREPARED BY:
V3 Companies Matt Vogel
619 North Pennsylvania Street
Indianapolis, IN 46204
317.423.0690

July 7, 2023
Revised February 8, 2024

Contents

Appendix A –Inspection & Maintenance Checklists

Appendix B – Invasive Species

Appendix C – Ridge at Williams Creek Subdivision Section I Plans and Details

Introduction

Preface

This Operations and Maintenance Manual (O&M) has been prepared based on guidelines published in the City of Indianapolis, Indiana Stormwater Design and Construction Specifications Manual for TMK Development, LLC. (OWNER).

The Ridge on Williams Creek (SITE) is 11.6 acre +/- property, located at 859 W 96TH ST, Indianapolis, Indiana. The main purpose of the stormwater management Best Management Practices (BMPs) on the site, are to ensure water quantity and quality control by reducing peak runoff discharged from the increased impervious nature of residential development.

Before stormwater leaves the SITE, it is treated for both quality and quantity through the implementation of various BMPs discussed throughout this manual. Water quantity is managed through the use of both wet and dry detention areas. Water quality management occurs through but not limited to the aforementioned basins, grassy swales, and native wet tolerant plantings. The locations of the BMPs, cross section of BMP features, and points of discharge for stormwater treated by the BMPs can be found in The Ridge on Williams Creek plans, included as part of this manual in Appendix C.

Purpose

This Operations and Maintenance Manual (O&M) defines requirements for operating, inspecting, and maintaining The Ridge on Williams Creek infrastructure, including all the BMPs constructed as part of the stormwater plan prepared by V3 Companies (ENGINEER) on behalf of the OWNER. The proposed BMPs intend to provide natural and sustainable water quality and quantity treatment. The OWNER will be responsible for all maintenance and costs associated with routine inspections and maintenance of the integrated stormwater management system BMPs. Brief descriptions of what each BMP is intended to accomplish and the physical processes which govern its behavior are included within the following manual. Inspection and maintenance guidelines specified in this manual should be implemented in order to ensure that BMPs achieve their full performance capabilities.

Section I: Owner Information

Contact Information for Owner

TMK Development, LLC
9335 Forgotten Creek Drive
Indianapolis, IN 46260
Office: 219.878.3918
Contact: Thomas Kretz
tmkretz@gmail.com

- The OWNER is responsible for all maintenance activities and costs associated with said activities within the BMPs.
- The OWNER will keep logs and records of inspections and maintenance activities.
- The OWNER will self-certify when requested by the City that inspections and maintenance was performed according to the O&M Manual.
- The OWNER owner will remove and replace filter media as need, determined by infiltration rate, drain down time, percolation test, etc.

Right of Access

The OWNER hereby grants right of access to the City of Indianapolis to inspect and maintain the BMPs and all other aspects covered within this manual.

Owner Acknowledgement Agreement ("Agreement")

For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the undersigned owner (OWNER) hereby submits this Operation and Maintenance Manual (MANUAL) to the City of Indianapolis, Indiana (CITY) as written acknowledgement of Owner's warranty and agreement to institute, maintain, and follow the water quality Best Management Practices (BMPs) as described in this manual, and to follow and abide by the inspection schedule and maintenance activities listed in this manual. The Owner also hereby agrees to provide, at Owner's cost, all additional maintenance, repair and/or replacement services reasonably necessary to maintain the function and longevity of the BMPs from and including the date this Agreement is executed by Owner to and including the date on which a new Agreement is filed with the City by another party who assumes all of the obligations and responsibilities of Owner as set forth herein.

Owner Signature

3/13/2024
Date

Thomas M. Kretz
Printed Name

TMK Development, LLC.
Company

STATE OF Indiana)
) SS:
COUNTY OF Marion)

BEFORE ME, the undersigned a Notary Public in and for said County and State, personally appeared Thomas M. Kretz, Owner, subscribed and sworn before this 13 day of March, 2024.

Marion
County of Residence

02/08/2032
Commission Expiration Date

Signature

Emma Eldridge
Notary Public - Seal
State of Indiana
Marion County
My Commission Expires 02/08/2032
Commission No. NP0754458

Emma Eldridge
Printed Name

Section II: Site BMP Features

Introduction

This section defines responsibilities for operating, inspecting, and maintaining the integrated detention and water quality systems within The Ridge on Williams Creek Subdivision in Indianapolis, Indiana. The subsequent sub-sections below describe in detail what to observe and if deficiencies are found, how to maintain or remediate. This project utilizes BMPs including wet and dry detention areas. In this instance, BMP refers to both water quality and quantity treatment. The operation, inspection, and maintenance of these BMPs are covered in this section. To ensure long-lasting performance, outside of routine landscaping operations for the project, inspections will be the responsibility of the OWNER. Sample inspection and maintenance checklists are included in Appendix A to evaluate each area of concern. Each inspection report shall be kept on file as a permanent record by the OWNER.

Dry Detention Area BMP

Introduction

This type of BMP is considered a natural green infrastructure practice that affords benefits to the environment and receiving infrastructure through transpiration, evaporation, nutrient uptake, floatables and sediment control, as well as carbon sequestration. Strategically placed as part of this project, this type of BMP integrates stormwater runoff conveyance with quantity control and full quality control. Generally, runoff enters the BMP via stormwater infrastructure. The BMP temporarily detains the collected stormwater, where it is filtered through native vegetation. The water is released over time to reduce the total volume sent to storm sewers after a rain event, which helps to reduce flooding. Additionally, this type of BMP provides natural habitats to support wildlife and native plants.

Stormwater Infrastructure Inspection Schedule

The City of Indianapolis will have the right to enter the premises to perform compliance inspections and maintenance of all infrastructure associated with this type of BMP. This BMP's infrastructure components are considered to be the following:

- Inlet/Outlet Pipes, Outlet Control, & Other Structures
- Embankments & Spillway
- Scour Protection Material
- Native Prairie Management
- BMP Surface

Inspections & Maintenance/Remediation

The following are areas critical for inspection to ensure proper working function of the BMP as well as verify optimal treatment performance.

<u>Inlet/Outlet Pipes, Outlet Control, & Other Structures (At Least Quarterly, As Needed)</u>

Inspection

- Visually inspect pipes and structures for damage, displacement, and blockage or restricted stormwater flow by any detritus, sediment, or plant material at least four times per year and following rain events in excess of one (1) inch.

Maintenance

- Remove all debris, trash, floatables, or other material restricting stormwater flow and dispose of properly. Sediment should be removed when the basin is completely dry. Disturbed areas need to be immediately stabilized and re-vegetated with appropriate species.

Remediation

- Repair and/or replace any damaged pipes or structures to their originally designed condition and elevation.

<u>Embankments & Spillway (At Least Biannually, As Needed)</u>

Inspection

Check the slopes of the BMP for erosion or scour protection displacement. Please note the location and describe the failure as specifically as possible. Inspect for evidence of burrowing or tunneling mammals at least twice during the growing season.

Maintenance

- Remove all debris and trash accumulation.

Remediation

- Areas of severe erosion or other conditions that affect the integrity of the BMP or constitute a public safety hazard should be corrected as soon as possible and prior to the next monthly inspection. Burrowing mammals should be controlled or eradicated when they endanger the integrity of the embankments or pose a public safety hazard. Damage caused by their actions must be repaired as soon as possible. Any burrowing mammal control effort will need to be carefully planned and executed to avoid negative impacts on adjacent habitats and wildlife and should be confined to the embankments.

Scour Protection Material (At Least Quarterly, As Needed)

Inspection

- Pay close attention for scour along the edges of the stone material adjacent to the stormwater structures. This indicates the stone is not acting like a channel and instead forcing runoff to the unprotected edges. This can be caused by debris accumulation, washed away stone or insufficient width to adequately convey runoff influent from the outlets to the BMP surface.

Maintenance

- Remove any debris accumulation. Restore any washed away stone from accumulated piles to areas bare from movement.

Remediation

- Should inspection warrant, remediate insufficient stone quantity with similar material to either widen or lengthen the stone section or restore bare areas where stone is missing. Should the remediation be necessary due to insufficient protection, explore options to enhance protection or lessen erosive velocities.

Native Prairie Management (As Identified Below)

All topics covered in Native Prairie Management apply to prairies within identified BMPs, as well as all other prairie areas.

Inspection (Within 1-Year Establishment Period - Monthly)

- Immediately after installation of material and for a minimum of one (1) subsequent year, visual inspection of plant establishment shall be monthly. Depending on planting type, pay close attention to bare areas where seed washed away before establishment. Seed material will take longer to establish than plugs/gallon stock material and may require a longer term of monthly inspections. Additionally, inspect plantings for signs of invasive species. Refer to the Invasive Species appendix of this Manual for common types. Refer to the Performance Standards and Vegetation Monitoring sub-sections below for more detailed information.

Maintenance (Within 1-Year Establishment Period)

- Remove all invasive species found within planted areas. As the native culture establishes over time, the introduction of invasive species will be minimized. Areas where seed has been washed away, re-seed with similar mix. Replace all plant material as needed to prevent erosion. Should inspection warrant, during drought periods, water plantings to continue full establishment and healthy growth.

Inspection (After Establishment Period - Biannually)

- Continue monitoring plant material at a minimum of two (2) times annually. Pay close attention to signs of invasive species. Refer to the Performance Standards and Vegetation Monitoring sub-sections below for more detailed information.

Maintenance (After Establishment Period)

- Remove all invasive species found within planted areas. This activity can coincide with normal landscape maintenance scope of the project. Should inspection warrant, during drought periods, water plantings to continue full establishment and healthy growth. No fertilizer is to be used on this project unless soil testing has found specific deficiencies in nutrients.

Weeding & Herbicide Guidance

- Hand removal or equipment removal of invasive species is preferable to the greatest practical extent (larger planting areas may not be practical). Care should be taken during hand removal, especially within the first year of prairie establishment. Prairie seedlings are delicate and can be pulled up with the weeds. Also, be careful not to mistake prairie plants for weeds. If maintenance staff can identify perennial weeds from annual weeds, perennial weeds should be the focus for hand removal, otherwise, follow the Mowing Guidance sub-section below.
- Within the second year of establishment, annual weeds may still be prevalent, along with common biennial weeds, such as Queen Anne's Lace, Sweet Clover, Wild Parsnip, and Burdock. The Invasive Species Appendix provides a few examples of common invasive species, as well as a link to an exhaustive list found within Indiana.
- Within the third and fourth year of prairie establishment, if perennial weeds appear, they must be controlled immediately, or they may become established and increasingly difficult to manage.
- Controlled spot herbicide applications to manage invasive species are acceptable if warranted and can be done without damaging off-target vegetation. The following provides guidance for applications.
    - Herbicide applications shall be conducted on minimally windy days to ensure chemical does not spread or volatilize. Re-seed and/or replant any die-back resulting from treatment. In all cases, herbicides must be applied using applicators approved by the State Chemist's Office. All herbicide treatment shall be approved by the City of Indianapolis Stormwater Department prior to application.
    - Throughout the first year of establishment, weeds, non-native, or invasive species can be treated with selective herbicide applications approved for use around water (Rodeo) by spot- spraying or other means that minimizes incidental drift. A determination regarding the type of herbicide to be used should be made when it is known which nuisance species are present on the site. Depending on the target weed species, a selective herbicide may be available. The choice of herbicide and timing of herbicide application will be

made by a trained, experienced professional based on the target weed species and conditions. Care should be taken to monitor site weather conditions to limit herbicide drift, overspray, and ensure it is rainfast.

- It is recommended that a minimum of four annual weed control application periods are conducted throughout a three-year management period. Below is a general guideline on the suggested schedule and target species for the application periods:
    1. Application Period One (early spring – April/May): problematic species such as, but not limited to, reed canary grass, red/white clover, cool season adventive grasses.
    2. Application Period Two (late spring to early summer – May/June): problematic species such as, but not limited to, teasel, white/yellow sweet clover, thistle.
    3. Application Period Three (mid to late summer – July/August): problematic species such as, but not limited to, tall goldenrod, hairy aster, ragweed, cattails, purple loosestrife.
    4. Application Period Four (late summer and fall – September/October): problematic species such as, but not limited to, reed canary grass, thistle, common reed, red/white clover, cool season grasses.

Native Prairie Mowing Guidance

- Within the first year of prairie establishment, controlling weeds is critical and should be done with care. Within this period, the prairie should be carefully mowed routinely to a height between four (4) to six (6) inches when weeds reach 12 to 18 inches tall. Do not let plant material get taller than 18 inches, as the subsequent mowing could leave enough material to suppress the growth of prairie seedlings. To greatest extent possible, wait until prairie plant material and underlying soil is dry before it is mown. Never mow wet or soggy plant material. Flail-type mowers are recommended for larger areas because they shred the herbaceous material and pose less risk of injury to the operator from flying debris. Selective weed whipping can be used instead of a mower if conditions are unfit (e.g., too wet or no access) for a tractor, or if only small, isolated areas require cutting.
- Within the second year of prairie establishment, mow the prairie down to roughly 12 inches tall when biennial weeds are in full bloom, but before they set seed, typically around mid to late June. Two mowings may be required at a height of 12 inches in year two, when weeds are in flower but have not yet seeded.
- At the beginning of the third growing season, around mid-Spring, mow the prairie close to the ground. To the greatest practical extent, mown material should be removed to expose the soil to the warming sun. This will encourage the growth of prairie plants over weeds.
- Upon successful establishment, mowing shall be completed once a year in the late spring. Mowing to occur no earlier than May 15th and no later than June 15th. The vegetation should be cut to a height of 6 to 9 inches at this time. Biennial weeds may appear in the third or fourth year, due to dormant seeds surviving in the soil. These weeds will need to be managed on a case-by-case basis, either being pulled or mowed back before they set seed.

Performance Standards

- The three-year management program with specifically identified performance standards

should be conducted for the native prairie establishment so that the relative success may be evaluated. Controlling invasive species is essential to the prairie establishment and will be required to achieve the performance standards for the project. If the performance standards are not achieved by the end of the three-year management program, the OWNER is responsible for correction of any deficiencies through further management activities, which may include replanting. The performance standards are as follows.

- Within 3 months of seed installation, at least 90% of the native prairie, as measured by aerial coverage, shall be vegetated. A minimum 90% vegetative coverage shall be maintained throughout, and at the end of, the three-year period for this area.
- At the end of the first year of the monitoring period, all vegetated areas shall achieve a minimum 10% native vegetative coverage. None of the three most dominant species can be non-native and/or invasive.
- At the end of the second year of the monitoring period, all vegetated areas shall achieve a minimum 25% native vegetative coverage. None of the three most dominant species can be non-native and/or invasive.
- At the end of the third year of the monitoring period, all vegetated areas shall achieve a minimum 75% native vegetative coverage. None of the three most dominant species can be non-native and/or invasive.
- At the end of the third year of the monitoring period the site as a whole shall achieve a Floristic Quality Index of 20 or greater.
- Relative coverage (determined by ocular estimation) of cattails shall be less than 10% throughout, and at the end of, the three-year period.
- Relative coverage (determined by ocular estimation) of common reed, reed canary grass and purple loosestrife in aggregate shall be less than 5% throughout, and at the end of, the three- year period.
- Relative coverage (determined by ocular estimation) of thistle and teasel in aggregate shall be less than 5% throughout, and at the end of, the three-year period.

Vegetation Monitoring

- Annual vegetation monitoring in the native prairie areas will be conducted during the three-year period beginning immediately following planting. Ocular estimation will be used to collect approximate vegetative and species coverage data. The vegetation monitoring inspections will be conducted twice per year in May/June and August/September. In addition, an inventory of all plant species present in these areas should be collected and used to determine desired native species presence.

<u>BMP Surface (At Least Quarterly, As Needed)</u>

Inspection

- Visually inspect the surface of the BMP for indications of excessive ponding due to improper drainage or infiltration. Signs include plant die-off, pockets of shallow pooling, and/or presence of algae pockets. Any ponding at the surface of the BMP for periods

longer than 48-hours is considered a failure and will require maintenance/remediation.

Maintenance

- Scarify top surface soil layers in areas with dead or missing plant material to free up surface voids and break up potential compaction. Remove any dead plant material. Replace soil to originally designed grade, then replant disturbed areas with similar species. Any mulch used to protect seeding should be finished (aged) leaf compost mulch. mulch in areas where depth is less than 2-inches using finished (aged) leaf compost mulch.

Remediation

- Should inspection warrant, BMP soil shall be removed and replaced with modified soil in conformance with design specifications. If the design specifications for the modified soil are deemed inadequate, increase the sand content to increase the permeability of the soil. Pay close attention to minimum organic and topsoil percentages as well as pH levels for plant health.

Wet Pond BMP

Introduction

This type of BMP is considered a practice that affords benefits to the environment and receiving infrastructure through evaporation, floatables, and sediment control. As part of this project, this type of BMP integrates full quality control. Generally, runoff enters the BMP via natural sheet flow. The BMP retains the collected stormwater, where it only leaves the pond when the level reaches the elevation of the outlet pipe. This gives and accumulated sediment to settle to the bottom of the pond and keep from entering the natural Creek downstream. This type of BMP also provides natural habitats to support wildlife.

Stormwater Infrastructure Inspection Schedule

The City of Indianapolis will have the right to enter the premises to perform compliance inspections and maintenance of all infrastructure associated with this type of BMP. This BMP's infrastructure components are considered to be the following:

- Inlet/Outlet Pipes

Inspections & Maintenance/Remediation

The following are areas critical for inspection to ensure proper working function of the BMP as well as verify optimal treatment performance.

<u>Inlet/Outlet Pipes (At Least Quarterly, As Needed)</u>

Inspection

- Visually inspect pipes and structures for damage, displacement, and blockage or restricted stormwater flow by any detritus, sediment, or plant material at least four times per year and following rain events in excess of one (1) inch.

Maintenance

- Remove all debris, trash, floatables, or other material restricting stormwater flow and dispose of properly. Disturbed areas need to be immediately stabilized and re-vegetated with appropriate species.

Remediation

- Repair and/or replace any damaged pipes or structures to their originally designed condition and elevation.

Hydrodynamic Separator BMP

Introduction

This type of BMP is considered a mechanical flow-through practice that affords benefits to the environment and receiving infrastructure through floatables and sediment control. Strategically placed as part of this project, this type of BMP integrates full quality control for the entire site by removal of all total suspended solids. Generally, runoff enters the BMP via stormwater infrastructure. The BMP creates a vortex which is designed to removal total suspended solids, collecting them in a convenient location to be removed completely from the system. The water is released without further restriction compared to the designed release rate and can be installed in-line of other proposed storm sewer infrastructure.

Stormwater Infrastructure Inspection Schedule

The City of Indianapolis will have the right to enter the premises to perform compliance inspections and maintenance of all infrastructure associated with this type of BMP. This BMP's infrastructure components are considered to be the following:

- Inlet/Outlet Pipes & Structures
- Hydrodynamic Separator Manhole Structure

Inspections & Maintenance/Remediation

The following are areas critical for inspection to ensure proper working function of the BMP as well as verify optimal treatment performance.

<u>Inlet/Outlet Pipes & Structures (Annually, As Needed)</u>

Inspection

- Visually inspect pipes and structures for damage, displacement, and blockage or restricted stormwater flow by any debris, sediment, or plant material at least one time per year especially immediately after construction is complete.

Maintenance

- Remove all debris, trash, floatables, or other material restricting stormwater flow and dispose of properly. Sediment should be removed when the upstream basin is completely dry. Surrounding disturbed areas need to be immediately stabilized and re-vegetated with appropriate species.

Remediation

- Repair and/or replace any damaged pipes or structures to their originally designed condition and elevation.

<u>Hydrodynamic Separator Manhole Structure (Annually, As Needed)</u>

Inspection

- Visually inspect inside the structure for damage, displacement, and blockage or restricted stormwater flow by any debris, sediment, or plant material at least one time per year especially immediately after construction is complete.

Maintenance

- Remove all debris, trash, floatables, or other material restricting stormwater flow and dispose of properly. Sediment should be removed when the upstream basin is completely dry. Surrounding disturbed areas need to be immediately stabilized and re-vegetated with appropriate species.

Remediation

- Repair and/or replace any damaged components of the structure to their originally designed condition.

Sump & SNOUT BMPs

Introduction

This document defines responsibilities for operating, inspecting, and maintaining the sump and SNOUT BMPs within the project. The sumps and SNOUTs serve as outlet protection for stormwater from the site. The SNOUTs cover outlet pipes leaving sump structures to collect floatable debris.

Stormwater Infrastructure Inspection Schedule

The City of Indianapolis will have the right to enter the premises to perform compliance inspections and maintenance of all infrastructure associated with this type of BMP. This BMP's infrastructure components are considered to be the following:

- Inlet/Outlet Pipes & Structures

Inspections & Maintenance/Remediation

The following are areas critical for inspection to ensure proper working function of the BMP as well as verify optimal treatment performance.

Inlet/Outlet Pipes & Structures (At Least Quarterly, As Needed)

Inspection

- Visually inspect pipes and structures for damage, displacement, and blockage or restricted stormwater flow by any detritus, sediment, or plant material at least four times per year and following rain events in excess of one (1) inch.

Maintenance

- Remove all debris, trash, floatables, or other material restricting stormwater flow and dispose of properly. Note visible pollution such as oily sheens, discoloration, and cloudy or muddy water. Remove and clean SNOUT upon visual identification of excess hydrocarbons and oils. Sediment removal may be necessary within the sumped areas. Sediment removal is to be accomplished utilizing smaller equipment no larger than a vacuum truck or similar. Any sediment removed shall be placed in a location and removed in a timely manner such that it will not re-enter the system.

Remediation

- Repair and/or replace a damaged SNOUT if necessary.

Spill Response Plan

The proposed land use will consist of single-family residential houses. The pollutants and sources of each pollutant normally expected from this type of land use are listed below:

- Pollutant Source: Passenger vehicles, delivery vehicles, and trucks
  - Type of Pollutant: Oil, gasoline, diesel fuel, any hydrocarbon associated with vehicular fuels and lubricants, grease, antifreeze, windshield cleaner solution, brake fluid, brake dust, rubber, glass, metal and plastic fragments, grit, road de-icing materials
- Pollutant Source: Residence

- Type of Pollutant: Cleaning solutions or solvents, leaks from HVAC equipment, grit from roof drainage, aggregate or rubber fragments from roofing system
- Pollutant Source: Roadway
  - Type of Pollutant: Any pollutant associated with vehicular sources, grit from asphalt wearing surface, bituminous compounds from periodic maintenance (sealing, resurfacing, and patching), pavement de-icing materials, wind-blown litter from off-site sources, and elevated water temperatures from contact with impervious surfaces
- Pollutant Source: Lawn and landscape areas
  - Type of Pollutant: Fertilizers, herbicides, organic material (leaves, mulch, grass clippings) and pesticides.

In case of spill, contact the City of Indianapolis Fire Department (317-736-3650), City of Indianapolis Department of Public Works (888-736-3640), and the IDEM Spill Hotline (317-233-7745).

Responsible Parties

The following owner information is responsible for funding and maintenance of the BMP's listed in the manual:

Owner's Name:	TMK Development, LLC
Owner's Address:	9335 Forgotten Creek Drive Indianapolis, IN 46260

Section III: Stormwater Infrastructure

Introduction

This section defines responsibilities for operating, inspecting, and maintaining the stormwater infrastructure structures and conveyances within The Ridge on Williams Creek Subdivision in Indianapolis, Indiana. The subsequent sub-sections below describe in detail what to observe and if deficiencies are found, how to maintain or remediate. It is critical for the long-term success of stormwater operations to conduct thorough and regular inspections and maintenance of this infrastructure, both part of and separate from the BMPs. Maintenance responsibilities shall remain in effect for the life of the infrastructure from the date the construction is completed. Sample inspection and maintenance checklists are included in Appendix B to evaluate each area of concern, relative to stormwater infrastructure. Each inspection and maintenance checklist shall be kept on file as a permanent record by the OWNER and made available to the City of Indianapolis upon request. Additional inspections are recommended following a significant rainfall event.

Stormwater Structure Maintenance

Stormwater Structure Inspection Schedule

The City of Indianapolis personnel will have the right to enter the premises to perform compliance inspections and maintenance of all permanent stormwater infrastructure. Stormwater structures are considered inlets, outlets, curb turnouts, and all associated components which help transfer stormwater to or from conveyance pipes.

Inspections & Maintenance/Remediation

The following are areas critical for inspection to ensure proper working function of the infrastructure.

Inlet/Outlet Structures (At Least Quarterly, As Needed)

Inspection

- Visually inspect structures inside and out for damage, displacement, and blockage or restricted stormwater flow by any detritus, sediment, or plant material at least four times per year and following rain events in excess of one (1) inch. Identify any floatables or pollutants such as oily sheens, discoloration, and cloudy or muddy water. Also inspect for undercutting around the edges of the structures.

Maintenance

- Remove all debris, trash, floatables, or other material in or around the structures, especially those restricting stormwater flow. If any pipes or structures are blocked, they must be cleared as soon as possible, and the material disposed of properly. Sediment should be removed when the area is completely dry. Disturbed areas need to be immediately stabilized and re-vegetated with appropriate species.

Remediation

- Repair and/or replace any damaged structures or their components to their originally designed condition and elevation. If erosion is occurring, then additional scour protection measures will need to be employed. Areas of severe erosion or other conditions that may constitute a public hazard should be corrected as soon as possible and prior to the next inspection.

Scour Protection Material (At Least Quarterly, As Needed)

Inspection

- Pay close attention for scour along the edges of the stone material adjacent to the structures. This indicates the stone is not acting like a channel and instead forcing runoff to the unprotected edges. This can be caused by debris accumulation, washed away stone, or insufficient width to adequately convey stormwater to or from the structures.

Maintenance

- Remove any debris accumulation. Restore any washed away stone from accumulated piles to areas bare from movement.

Remediation

- Should inspection warrant, remediate insufficient stone quantity with similar material to either widen or lengthen the stone section or restore bare areas where stone is missing. Should the remediation be necessary due to insufficient protection, explore options to enhance protection or lessen erosive velocities. Areas of severe erosion or other conditions that may constitute a public hazard should be corrected as soon as possible and prior to the next inspection.

Stormwater Conveyance Inspection Schedule

The City of Indianapolis personnel will have the right to enter the premises to perform compliance inspections and maintenance of all permanent stormwater infrastructure. Stormwater infrastructure conveyance in this section includes stormwater pipes.

Inspections & Maintenance/Remediation

The following are areas critical for inspection to ensure proper working function of the infrastructure.

Stormwater Pipes (At Least Quarterly, As Needed)

Inspection

- To the greatest extent possible, visually inspect pipes for damage, displacement, and blockage or restricted stormwater flow by any detritus, sediment, or plant material at least four times per year and following rain events in excess of one (1) inch. Note the amount of sediment and/or debris accumulation within pipes on the inspection report. Identify any floatables or pollutants such as oily sheens, discoloration, and cloudy or muddy water.

Maintenance

- Remove all debris, trash, floatables, or other material in or around the pipes, especially those restricting stormwater flow. If any pipes or structures are blocked, they must be cleared as soon as possible, and the material disposed of properly. Sediment and any other debris should be removed from the pipe before 10% of the pipe diameter is blocked. Disturbed areas need to be immediately stabilized and re-vegetated with appropriate species.

Remediation

- Repair and/or replace any damaged structures or their components to their originally designed condition and elevation. If erosion is occurring, then additional scour protection measures will need to be employed. Areas of severe erosion or other conditions that may constitute a public hazard should be corrected as soon as possible and prior to the next inspection.

The proposed land use will consist of single-family residential houses. The pollutants and sources of each pollutant normally expected from this type of land use are listed below:

- Pollutant Source: Passenger vehicles, delivery vehicles, and trucks
  - Type of Pollutant: Oil, gasoline, diesel fuel, any hydrocarbon associated with vehicular fuels and lubricants, grease, antifreeze, windshield cleaner solution, brake fluid, brake dust, rubber, glass, metal and plastic fragments, grit, road de-icing materials
- Pollutant Source: Residence
  - Type of Pollutant: Cleaning solutions or solvents, leaks from HVAC equipment, grit from roof drainage, aggregate or rubber fragments from roofing system
- Pollutant Source: Roadway
  - Type of Pollutant: Any pollutant associated with vehicular sources, grit from asphalt wearing surface, bituminous compounds from periodic maintenance (sealing, resurfacing, and patching), pavement de-icing materials, wind-blown litter from off-site sources, and elevated water temperatures from contact with impervious surfaces
- Pollutant Source: Lawn and landscape areas
  - Type of Pollutant: Fertilizers, herbicides, organic material (leaves, mulch, grass clippings) and pesticides.

In case of spill, contact the City of Indianapolis Fire Department (317-736-3650), City of Indianapolis Department of Public Works (888-736-3640), and the IDEM Spill Hotline (317-233-7745).

Responsible Parties

The following owner information is responsible for funding and maintenance of the BMP's listed in the manual:

Owner's Name: TMK Development, LLC
Owner's Address: 9335 Forgotten Creek Drive
Indianapolis, IN 46260

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Appendix A – Inspection & Maintenance Checklists

Introduction

This appendix contains sample checklists meant to guide the process and documentation of inspections and maintenance of the BMPs mentioned within this manual for The Ridge on Williams Creek Subdivision. The checklists help to identify areas of the BMPs that require ongoing maintenance and the minimum frequency of inspections that should be completed. It is recommended that inspections be completed by a licensed professional engineer (PE) and/or person with sufficient operational knowledge of the BMPs design and function. Refer to the latest edition of the City of Indianapolis, Indiana Stormwater Technical Standards Manual for additional information.

The checklists in this appendix include:

- Dry Detention BMP Inspection and Maintenance Checklist
- Wet Pond BMP Inspection and Maintenance Checklist
- Water Quality Unit Inspection and Maintenance Log
- Stormwater Infrastructure: Structure Inspection and Maintenance Checklist
- Stormwater Infrastructure: Conveyance Inspection and Maintenance Checklist

Dry Detention BMP Inspection and Maintenance Checklist

Checklist to be completed monthly and within 48 hours of significant rainfall events resulting in 1 or more inch of rain within a 24 hour period.

Site Name _____

BMP – ID _____

"As Built" Plans Available? _____

Inspection Date _____ Inspection Time _____

Days Since Previous Rainfall _____ Depth of Previous Rainfall _____

Inspector _____ Inspector Signature _____

Maintenance Item	Satisfactory or Unsatisfactory	Recommended Inspection Frequency	Notes
Inlet/Outlet Pipes & Structures			
Inspect pipes and structures for proper functioning, damage, and displacement		Quarterly, As Needed	
Inspect for blockages and sediment or debris accumulation		Quarterly, As Needed	
Remove and dispose of sediment, debris, trash, etc. appropriately		As Needed	
Other: _____			
Scour Protection			
Inspect stone at inlets/outlets for displacement or loss of material and for erosion around the material		Quarterly, As Needed	
Inspect for sediment and debris accumulation		Quarterly, As Needed	
Remove and dispose of sediment, debris, trash, etc. appropriately		As Needed	
Inspect for weed intrusion		Quarterly	
Other: _____			
Embankments & Spillway			
Inspect slopes for erosion and structural integrity		Biannually, As Needed	
Inspect slopes for burrowing or tunneling of mammals		Biannually	
Other: _____			

Prairie (Post-Establishment Period)			
Inspect for weeds and invasive species		Biannually, As Needed	
Inspect for visual signs of plant cover, die-off, and overall health		Monthly, As Needed	
Inspect plant heights to determine mowing needs		Monthly, As Needed	
Other:_____			
BMP Surface			
Inspect for ponding, algae pockets, and improper drainage		Quarterly, As Needed	
Remove trash, debris, & sediment appropriately		As Needed	
Inspect for erosion and improper grades		Quarterly, As Needed	
Other:_____			
Actions to be taken:			
To be Completed by (Date):			

Wet Detention BMP Inspection and Maintenance Checklist

Checklist to be completed monthly and within 48 hours of significant rainfall events resulting in 1 or more inch of rain within a 24 hour period.

Site Name _____

BMP – ID _____

"As Built" Plans Available? _____

Inspection Date _____ Inspection Time _____

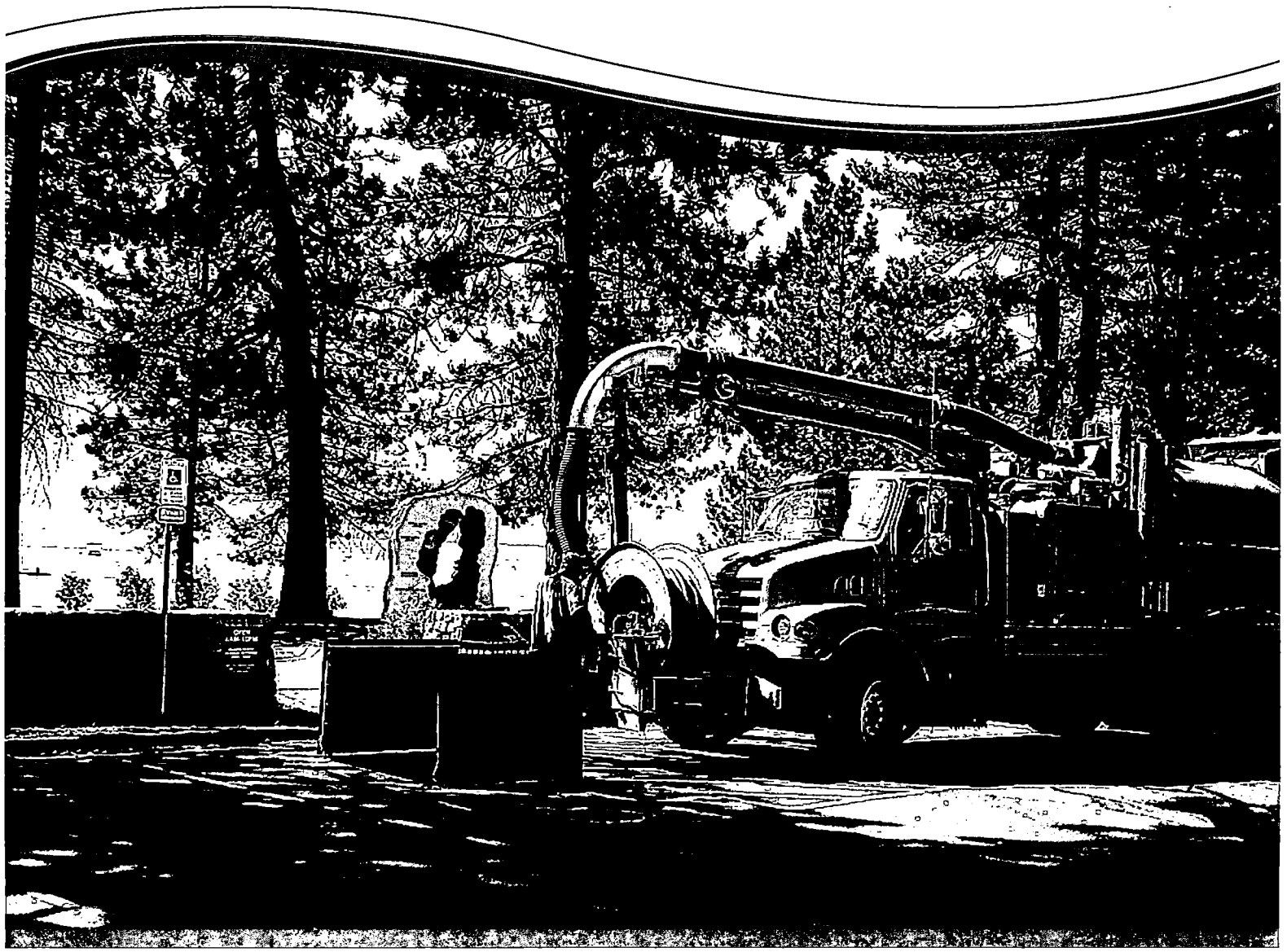
Days Since Previous Rainfall _____ Depth of Previous Rainfall _____

Inspector _____ Inspector Signature _____

Maintenance Item	Satisfactory or Unsatisfactory	Recommended Inspection Frequency	Notes
Inlet/Outlet Pipes & Structures			
Inspect pipes and structures for proper functioning, damage, and displacement		Quarterly, As Needed	
Inspect for blockages and sediment or debris accumulation		Quarterly, As Needed	
Remove and dispose of sediment, debris, trash, etc. appropriately		As Needed	
Other: _____			
Scour Protection			
Inspect stone at inlets/outlets for displacement or loss of material and for erosion around the material		Quarterly, As Needed	
Inspect for sediment and debris accumulation		Quarterly, As Needed	
Remove and dispose of sediment, debris, trash, etc. appropriately		As Needed	
Inspect for weed intrusion		Quarterly	
Other: _____			
Embankments & Spillway			
Inspect slopes for erosion and structural integrity		Biannually, As Needed	
Inspect slopes for burrowing or tunneling of mammals		Biannually	
Other: _____			

CONTECH®
ENGINEERED SOLUTIONS

Cascade Separator® Inspection and Maintenance Guide



CASCADE
separator®

Maintenance

The Cascade Separator® system should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects sediment and debris will depend upon on-site activities and site pollutant characteristics. For example, unstable soils or heavy winter sanding will cause the sediment storage sump to fill more quickly but regular sweeping of paved surfaces will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant transport and deposition may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. At a minimum, inspections should be performed twice per year (i.e. spring and fall). However, more frequent inspections may be necessary in climates where winter sanding operations may lead to rapid accumulations, or in equipment wash-down areas. Installations should also be inspected more frequently where excessive amounts of trash are expected.

A visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet chamber, flumes or outlet channel. The inspection should also quantify the accumulation of hydrocarbons, trash and sediment in the system. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure or other measuring instrument. If absorbent material is used for enhanced removal of hydrocarbons, the level of discoloration of the sorbent material should also be identified during inspection. It is useful and often required as part of an operating permit to keep a record of each inspection. A simple form for doing so is provided in this Inspection and Maintenance Guide.

Access to the Cascade Separator unit is typically achieved through one manhole access cover. The opening allows for inspection and cleanout of the center chamber (cylinder) and sediment storage sump, as well as inspection of the inlet chamber and slanted skirt. For large units, multiple manhole covers allow access to the chambers and sump.

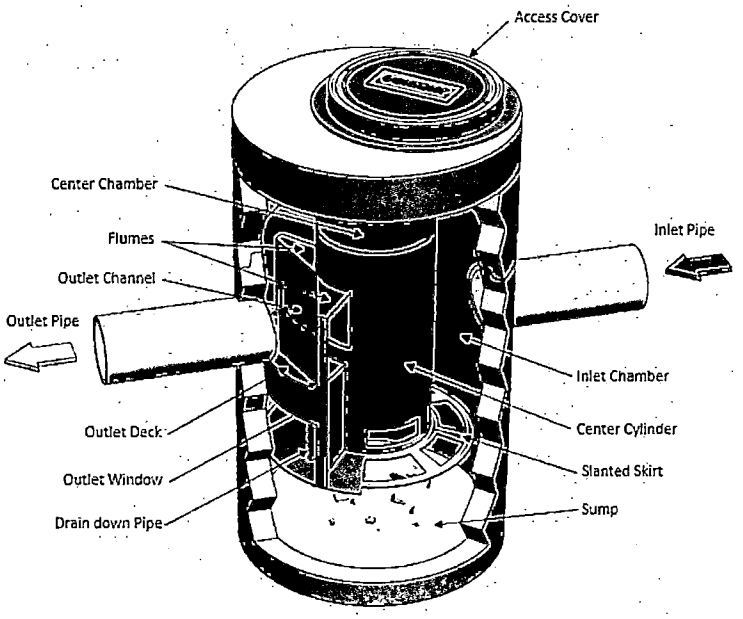
The Cascade Separator system should be cleaned before the level of sediment in the sump reaches the maximum sediment depth and/or when an appreciable level of hydrocarbons and trash has accumulated. If sorbent material is used, it must be replaced when significant discoloration has occurred. Performance may be impacted when maximum sediment storage capacity is exceeded. Contech recommends maintaining the system when sediment level reaches 50% of maximum storage volume. The level of sediment is easily determined by measuring the distance from the system outlet invert (standing water level) to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Finer, silty particles at the top of the pile typically offer less resistance to the end of the rod than larger particles toward the bottom of the pile. Once this measurement is recorded, it should be compared to the chart in this document to determine if the height of the sediment pile off the bottom of the sump floor exceeds 50% of the maximum sediment storage.

Cleaning

Cleaning of a Cascade Separator system should be done during dry weather conditions when no flow is entering the system. The use of a vacuum truck is generally the most effective and convenient method of removing pollutants from the system. Simply remove the manhole cover and insert the vacuum tube down through the center chamber and into the sump. The system should be completely drained down and the sump fully evacuated of sediment. The areas outside the center chamber and the slanted skirt should also be washed off if pollutant build-up exists in these areas.

In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, the system should be cleaned out immediately in the event of an oil or gasoline spill. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use absorbent pads since they are usually less expensive to dispose than the oil/water emulsion that may be created by vacuuming the oily layer. Trash and debris can be netted out to separate it from the other pollutants. Then the system should be power washed to ensure it is free of trash and debris.

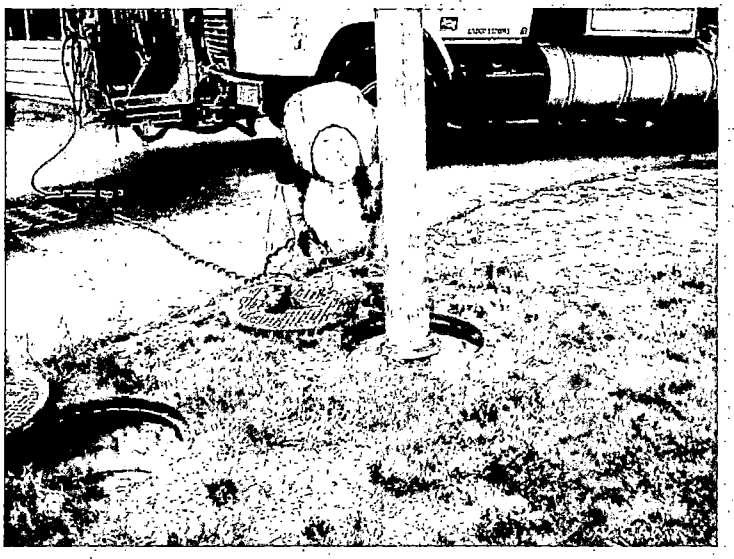
Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and to ensure proper safety precautions. Confined space entry procedures need to be followed if physical access is required. Disposal of all material removed from the Cascade Separator system must be done in accordance with local regulations. In many locations, disposal of evacuated sediments may be handled in the same manner as disposal of sediments removed from catch basins or deep sump manholes. Check your local regulations for specific requirements on disposal. If any components are damaged, replacement parts can be ordered from the manufacturer.



Cascade Separator® Maintenance Indicators and Sediment Storage Capacities

Model Number	Diameter		Distance from Water Surface to Top of Sediment Pile		Sediment Storage Capacity	
	ft	m	ft	m	y^3	m^3
CS-3	3	0.9	1.5	0.5	0.4	0.3
CS-4	4	1.2	2.5	0.8	0.7	0.5
CS-5	5	1.3	3	0.9	1.1	0.8
CS-6	6	1.8	3.5	1	1.6	1.2
CS-8	8	2.4	4.8	1.4	2.8	2.1
CS-10	10	3.0	6.2	1.9	4.4	3.3
CS-12	12	3.6	7.5	2.3	6.3	4.8

Note: The information in the chart is for standard units. Units may have been designed with non-standard sediment storage depth.



A Cascade Separator unit can be easily cleaned in less than 30 minutes.

A vacuum truck excavates pollutants from the systems.

Cascade Separator® Inspection & Maintenance Log

Cascade Model:			Location:		
Date	Depth Below Invert to Top of Sediment[1]	Floatable Layer Thickness[2]	Describe Maintenance Performed	Maintenance Personnel	Comments

1. The depth to sediment is determined by taking a measurement from the manhole outlet invert (standing water level) to the top of the sediment pile. Once this measurement is recorded, it should be compared to the chart in the maintenance guide to determine if the height of the sediment pile off the bottom of the sump floor exceeds 50% of the maximum sediment storage. Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile.
2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.

SUPPORT

- Drawings and specifications are available at www.ContechES.com.
- Site-specific design support is available from our engineers.

Contech Engineered Solutions LLC provides site solutions for the civil engineering industry. Contech's portfolio includes bridges, drainage, sanitary sewer, stormwater, and earth stabilization products. For information, visit www.ContechES.com or call 800.338.1122

CONTECH ENGINEERED SOLUTIONS
800-925-5240
www.ContechES.com

Stormwater Infrastructure: Structure Inspection and Maintenance Checklist

Checklist to be completed monthly and within 48 hours of significant rainfall events resulting in 1 or more inch of rain within a 24 hour period.

Site Name _____

BMP – ID (If Applicable) _____

"As Built" Plans Available? _____

Inspection Date_____ Inspection Time_____

Days Since Previous Rainfall_____ Depth of Previous Rainfall _____

Inspector_____ Inspector Signature_____

Storm Structure #	Debris	Blocked	Condition	Notes
	Y / N	Y / N	Intact / Damaged	
	Y / N	Y / N	Intact / Damaged	
	Y / N	Y / N	Intact / Damaged	
	Y / N	Y / N	Intact / Damaged	
	Y / N	Y / N	Intact / Damaged	
	Y / N	Y / N	Intact / Damaged	
	Y / N	Y / N	Intact / Damaged	
	Y / N	Y / N	Intact / Damaged	
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	Y / N	Y / N	Intact / Damaged	
	Y / N	Y / N	Intact / Damaged	
	Y / N	Y / N	Intact / Damaged	
	Y / N	Y / N	Intact / Damaged	
	Y / N	Y / N	Intact / Damaged	
	Y / N	Y / N	Intact / Damaged	
Actions to be Taken:				
To be Completed by (Date)				

Stormwater Infrastructure: Conveyance Inspection and Maintenance Checklist

Checklist to be completed monthly and within 48 hours of significant rainfall events resulting in 1 or more inch of rain within a 24 hour period.

Site Name _____

BMP – ID (If Applicable) _____

"As Built" Plans Available? _____

Inspection Date _____ Inspection Time _____

Days Since Previous Rainfall _____ Depth of Previous Rainfall _____

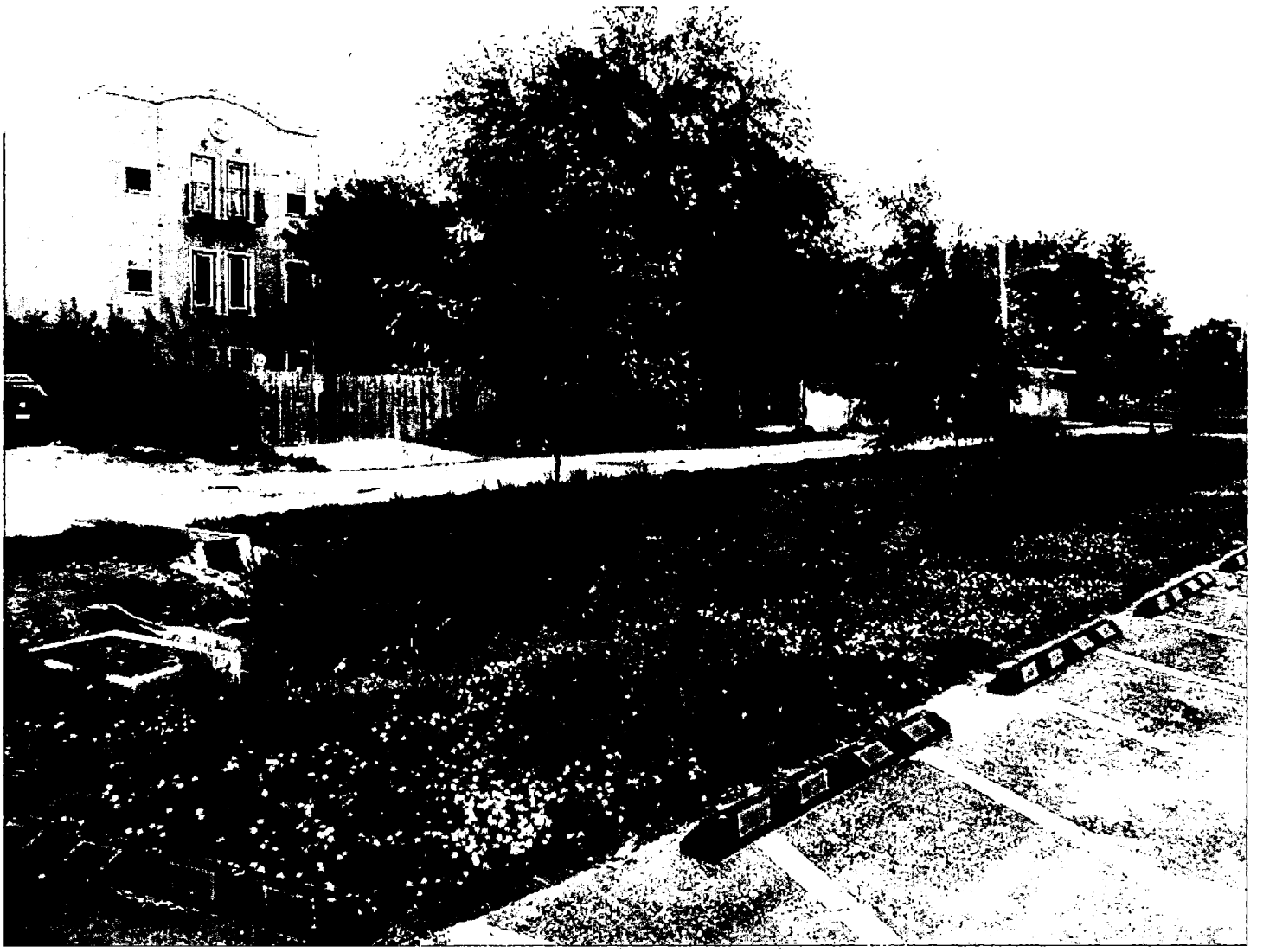
Inspector _____ Inspector Signature _____

Pipe #	Condition	Condition	Notes
	Blocked / Clean	Intact / Damaged	
Actions to be Taken:			
To be Completed by (Date)			

Appendix B – Invasive Species

Invasive Species

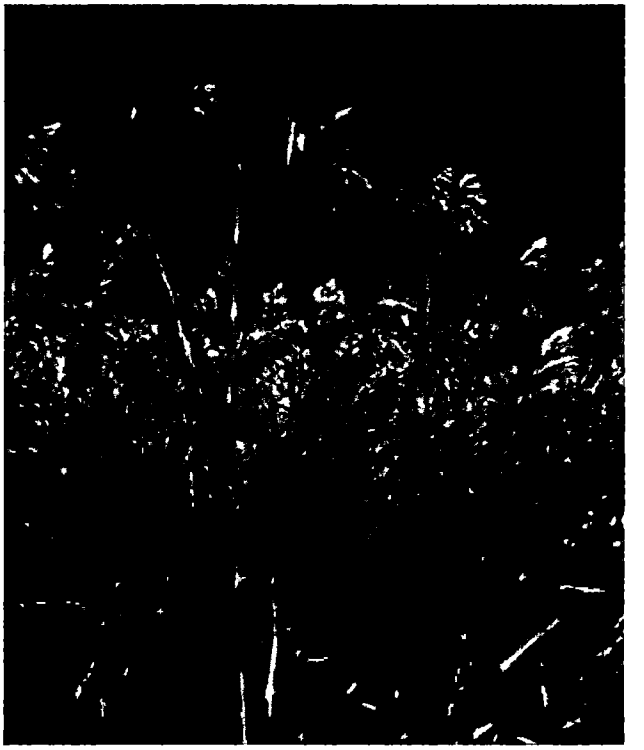
This appendix includes photos of invasive species and a species list that are commonly found within the vegetated areas:



Typha angustifolia
Narrowleaf Cattail

Phalaris arundinacea
Reed Canary Grass

Lythrum salicaria
Purple Loosestrife



Phragmites australis
Common Reed

Cirsium arvense
Canada Thistle

Alliaria petiolata
Garlic Mustard

Below is a list of invasive species that may be found within the vegetated areas:

- Asian Bush Honeysuckle
- Autumn Olive
- Black Locust
- Buckthron
- Chinese Silvergrass
- Common Reed
- Creeping Charlie
- Creeping Jenny
- Crown Vetch
- Dame's Rocket
- Japanese Hedge Parsley
- Japanese Honeysuckle
- Japanese Knotweed
- Multiflora Rose
- Norway Maple
- Periwinkle
- Privet
- Purple Lossestrife
- Purple Winter Creeper
- Reed Canary Grass
- Russian Olive
- Siberian Elm
- Smooth Brome
- Star-of-Bethlehem
- Sweet Clover
- Tall Fescue
- Tree-of-Heaven
- White Mulberry
- Winged Burning Bush

The link below is an exhaustive list of Indiana's Invasive Plants:
http://www.in.gov/dnr/naturepreserve/4736.htm

Appendix C – Ridge at Williams Creek Subdivision Section I Plans and Details

A202400023641

03/28/2024 10:58 AM
FAITH KIMBROUGH
MARION COUNTY IN RECORDER
FEE: $ 140.00
PAGES: 60
By: JN

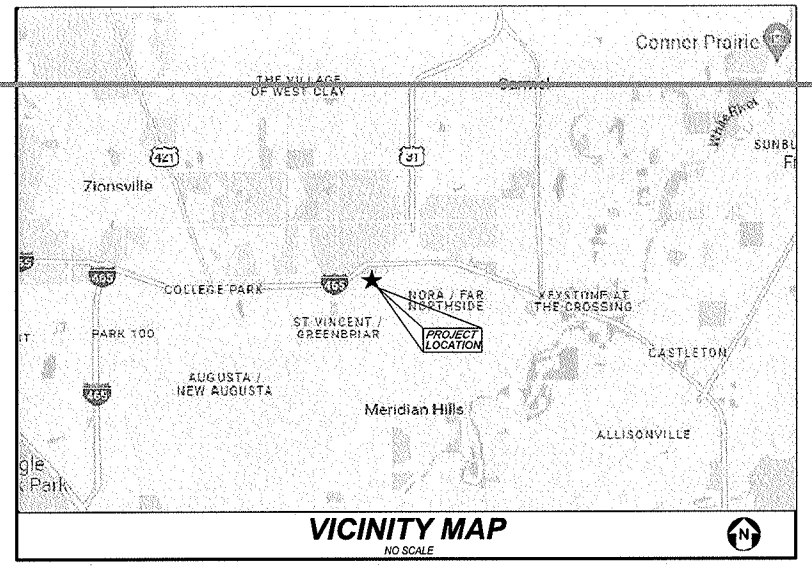
FINAL CONSTRUCTION PLANS

FOR

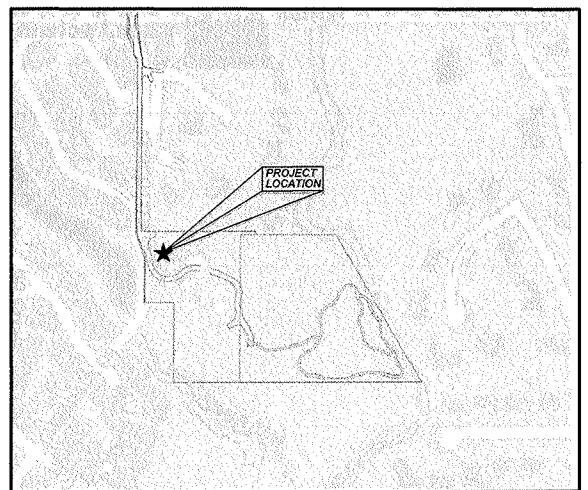
THE RIDGE ON WILLIAMS CREEK

859 W. 96TH STREET
INDIANAPOLIS, INDIANA

STORMWATER INFRASTRUCTURE SUMMARY TABLE		
PROPOSED BMPs	**CENTER LOCATION**	
BMP	1703064.02 , 185785.17	
DETENTION BASIN	1703103.92 , 185834.46	
WET POND	1703173.38, 186413.88	
PROPOSED STRUCTURE SUMMARY	**TOTAL QUANTITY**	
12" FES	7	
15" FES	2	
2' Inlet	3	
4' DIA. MH	9	
5' DIA. RESTRICTOR MH	2	
PROPOSED PIPE SUMMARY	**DESCRIPTION**	**LENGTH**
ST 1-1A - FES 1-1	15" RCP CLASS IV	43'
ST 1-1B - ST 1-1A	15" RCP CLASS IV	71'
ST 1-1 - ST 1-1B	15" RCP CLASS IV	104'
ST 1-2 - ST 1-1	12" RCP CLASS IV	70'
ST 1-3 - ST 1-2	12" RCP CLASS IV	197'
ST 1-4 - ST 1-3	12" RCP CLASS IV	110'
ST 2-1 - FES 2-1	12" RCP CLASS IV	246'
ST 3-1 - FES 3-2	15" RCP CLASS IV	11'
FES 3-1 - ST 3-1	12" RCP CLASS IV	19'
FES 4-1 - FES 4-2	12" RCP CLASS IV	89'
FES 4-3 - FES 4-4	12" RCP CLASS IV	76'
ST 5-1 - FES 5-1	12" RCP CLASS IV	26'
ST 5-2 - ST 5-1	12" RCP CLASS IV	44'
ST 5-3 - ST 5-2	12" RCP CLASS IV	85'
ST 5-4 - ST 5-3	12" RCP CLASS IV	76'
ST 5-5 - ST 5-4	12" RCP CLASS IV	62'



VICINITY MAP
NO SCALE



LOCATION MAP
NO SCALE

INDEX

CIVIL ENGINEERING PLANS

SUPPORTING DOCUMENTS

PROJECT TEAM

OWNER/DEVELOPER

TMK Development, LLC
9335 Forgotten Creek Drive
Indianapolis, Indiana 46260
219 878 3918
Contact: Thomas Kretz

ENGINEER

V3 Companies, Ltd.
619 North Pennsylvania Street
Indianapolis, Indiana 46204
317 423 0690
Project Manager: Jim Rinehart, P.E.
jrinehart@v3co.com
Project Engineer: Matt Vogel,
mvogel@v3co.com

BENCHMARKS

BM #1
FIRE HYDRANT BONNET BOLT ON NORTH SIDE OF PROPERTY
NORTHING: 1703619.892
EASTING: 185888.592
ELEVATION: 809.57

BM #2
RIM OF THECURB INLET ON WEST SIDE OF SITE ON THE ADJOINERS STREET
NORTHING: 1703395
EASTING: 185618.071
ELEVATION: 803.59

Originating benchmark established with Trimble GPS Survey grade equipment and Indiana CORS Network.
http://incors.in.gov/default.aspx
Elevations NAVD '88
Horizontal Indiana State Plane East Zone.

Indiana 811
Know what's below. Call before you dig.

UTILITY CONTACT INFORMATION

CITIZENS ENERGY GROUP/CWA AUTHORITY, INC.
2150 DR. MARTIN LUTHER KING JR ST INDIANAPOLIS, IN 46202
CONTACT: BRAD HOSTETLER (317) 927-4351

COMPLIANCE INFORMATION BLOCK:
DEPARTMENT OF
BUSINESS AND NEIGHBORHOOD SERVICES
1200 MADISON AVENUE
INDIANAPOLIS, INDIANA 46225
Ph: (317) 327-8700 Fax: (317)327-3125
DRAINAGE CASE NUMBER: DRN23-01695
FLOOD CASE NUMBER: FLD23-00234

DRAINAGE NOTE: ALL ROOF DRAINS AND DOWNSPOUTS FOR FUTURE HOMES CONSTRUCTED ON LOTS SHALL BE DIRECTED TO THE FRONT YARDS AND INTO OR THROUGH THE STORM CONVEYANCE SYSTEMS. ALL ROOF SURFACES SHALL BE ROUTED THROUGH THE STORMWATER BMP AND DETENTION BASIN AT THE SOUTHWEST CORNER OF THE PROJECT SITE.

PROFESSIONAL ENGINEER'S CERTIFICATION

I, JIM RINEHART, A LICENSED PROFESSIONAL ENGINEER OF INDIANA, HEREBY CERTIFY THAT THE CIVIL ENGINEERING PLANS WERE PREPARED ON BEHALF OF TMK DEVELOPMENT, LLC BY V3 COMPANIES, LTD. UNDER MY PERSONAL DIRECTION. THIS TECHNICAL SUBMISSION IS INTENDED TO BE USED AS AN INTEGRAL PART OF AND IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS AND CONTRACT DOCUMENTS.

DATED THIS 19th *DAY OF* March *, A.D., 2024.*

INDIANA LICENSED PROFESSIONAL ENGINEER PE10200495
MY LICENSE EXPIRES ON NOVEMBER 30, 2026

JAMES O. RINEHART IV — REGISTERED — No. 10200495 — STATE OF INDIANA — PROFESSIONAL ENGINEER

REVISIONS

NO.	DATE	DESCRIPTION
7	02-23-24	REVISED PER CITY COMMENTS
8	03-04-24	REVISED PER CITIZENS WATER COMMENTS

ORIGINAL ISSUE DATE: 07-07-2023

NO.	DATE	DESCRIPTION
1	09-15-23	REVISED PER CITY AND CITIZENS COMMENTS
2	10-18-23	REVISED PER CITIZENS COMMENTS
3	11-15-23	REVISED PER CITY AND CITIZENS COMMENTS
4	11-27-23	REVISED PER CITIZENS WATER COMMENTS
5	01-08-24	REVISED PER CITY COMMENTS
6	02-09-24	REVISED PER CITY COMMENTS

PROJECT NO: 220851 S04
PROJECT MANAGER: JOR
DESIGNED BY: MRV
DRAWN BY: MRV

COVER SHEET

THE RIDGE ON WILLIAMS CREEK
INDIANAPOLIS, INDIANA

619 N Pennsylvania St
Indianapolis, IN 46204
317.423.0690
www.v3co.com

DRAWING NO.
C0.0

GENERAL NOTES

1. EXISTING SITE TOPOGRAPHY, UTILITIES, RIGHT-OF-WAY AND HORIZONTAL CONTROL SHOWN ON THE DRAWINGS WERE OBTAINED FROM A SURVEY PREPARED BY:

   V3 COMPANIES, LTD.
   619 N. PENNSYLVANIA AVE.
   INDIANAPOLIS, IN 46204

   COPIES OF THE SURVEY ARE AVAILABLE FROM THE SURVEYOR. SITE CONDITIONS MAY HAVE CHANGED SINCE THE SURVEY WAS PREPARED. CONTRACTORS TO VISIT SITE TO FAMILIARIZE THEMSELVES WITH THE CURRENT CONDITIONS.

2. ALL EXISTING TOPOGRAPHY, UNDERGROUND UTILITIES, STRUCTURES AND ASSOCIATED FACILITIES SHOWN ON THESE DRAWINGS HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEREFORE, THEIR LOCATIONS AND ELEVATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHER FACILITIES, THE EXISTENCE OF WHICH ARE NOT PRESENTLY KNOWN.

3. CONTRACTOR IS TO VERIFY ALL EXISTING STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL AND STARTING WORK.

4. ALL APPLICABLE PROVISIONS OF THE CURRENT OCCUPATIONAL SAFETY AND HEALTH ACT ARE HEREIN INCORPORATED BY REFERENCE.

5. THE CONTRACTOR SHALL SUBSCRIBE TO ALL GOVERNING REGULATIONS AND SHALL OBTAIN ALL NECESSARY PUBLIC AGENCY PERMITS PRIOR TO STARTING WORK. THE CONTRACTOR, BY USING THESE PLANS FOR THEIR WORK, AGREE TO HOLD HARMLESS V3 COMPANIES LTD., THE MUNICIPALITY, THEIR EMPLOYEES AND AGENTS AND THE OWNER WHILE ACTING WITHIN THE SCOPE OF THEIR DUTIES FROM AND AGAINST ANY AND ALL LIABILITY, CLAIMS, DAMAGES, AND THE COST OF DEFENSE ARISING OUT OF CONTRACTOR(S) PERFORMANCE OF THE WORK DESCRIBED HEREIN, BUT NOT INCLUDING THE SOLE NEGLIGENCE OF THE OWNER, HIS AGENTS, THE ENGINEER, HIS EMPLOYEES AND AGENTS.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS FOR CONSTRUCTION ALONG OR ACROSS EXISTING STREETS OR HIGHWAYS. CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THE PROPER BRACING, SHORING AND OTHER REQUIRED PROTECTION OF ALL ROADWAYS BEFORE CONSTRUCTION BEGINS. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE STREETS OR ROADWAYS AND ASSOCIATED STRUCTURES AND SHALL MAKE REPAIRS AS NECESSARY TO THE SATISFACTION OF THE OWNER OF THE ROADWAY.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ADEQUATE SIGNS, TRAFFIC CONTROL DEVICES AND WARNING DEVICES TO INFORM AND PROTECT THE PUBLIC DURING ALL PHASES OF CONSTRUCTION. BARRICADES AND WARNING SIGNS SHALL BE PROVIDED IN ACCORDANCE WITH THE INDOT STANDARD SPECIFICATIONS. ALL TRAFFIC CONTROL WORK SHALL BE DONE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."

8. EXCEPT WHERE MODIFIED BY THE CONTRACT DOCUMENTS, ALL WORK PROPOSED HEREON SHALL BE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS WHICH ARE HEREBY MADE A PART HEREOF:

   a. "INDIANA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS" AS PREPARED BY INDOT, LATEST EDITION.
   b. "CITIZENS ENERGY GROUP WATER STANDARDS" LATEST EDITION.
   c. "CITIZENS ENERGY GROUP SANITARY STANDARDS" LATEST EDITION.
   d. THE LATEST EDITIONS OF THE MUNICIPAL CODE AND STANDARDS OF THE CITY OF INDIANAPOLIS.
   e. THE NATIONAL ELECTRIC CODE.
   f. THE INDIANA ACCESSIBILITY CODE.

   IN THE EVENT OF CONFLICTING SPECIFICATIONS WITH REGARD TO SITE WORK ISSUES DESIGNED BY THE ENGINEER, THE MORE STRINGENT REQUIREMENT SHALL GOVERN.

9. THE CONTRACTOR SHALL NOTIFY THE AUTHORITY HAVING JURISDICTION AT LEAST 48 HOURS PRIOR TO COMMENCING ANY WORK AND FOR ANY NEW CONSTRUCTION REQUIRING INSPECTION.

10. ALL TREES TO BE SAVED SHALL BE IDENTIFIED PRIOR TO CONSTRUCTION AND SHALL BE PROTECTED PER INDOT STANDARDS. THE RIGHT-OF-WAY LINE AND LIMITS OF THE CONTRACTOR'S OPERATIONS SHALL BE CLEARLY DEFINED THROUGHOUT THE CONSTRUCTION PERIOD. ALL TREES IDENTIFIED TO REMAIN SHALL BE PROTECTED FROM DAMAGE INCLUDING TRUNKS, BRANCHES AND ROOTS. NO EXCAVATING, FILLING OR GRADING IS TO BE DONE INSIDE THE DRIP LINE OF TREES UNLESS OTHERWISE INDICATED.

11. CONSTRUCTION ACCESS POINTS TO THE SITE SHALL BE PROTECTED IN SUCH A WAY AS TO PREVENT ACCUMULATION OF MUD OR SOIL ON PUBLIC THOROUGHFARES. AT THE END OF EACH DAY AND AS OFTEN AS OTHERWISE NECESSARY THE CONTRACTOR SHALL CLEAN UP ALL MUD OR SOIL WHICH HAS BEEN TRACKED ONTO PUBLIC STREETS AS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION AND AS DETAILED IN THE STORM WATER POLLUTION PREVENTION PLAN, SHEETS C4.10 AND C4.11.

12. THE CONTRACTOR SHALL PROVIDE FOR THE SAFE AND ORDERLY PASSAGE OF TRAFFIC AND PEDESTRIANS WHERE HIS/HER OPERATIONS ABUT PUBLIC THOROUGHFARES AND ADJACENT PROPERTY IN ACCORDANCE WITH THE CITY OF INDIANAPOLIS MUNICIPAL CODE AND INDOT REQUIREMENTS.

13. NO HOLES ARE TO BE LEFT OPEN IN THE PAVEMENT OR PARKWAY OVER A HOLIDAY, WEEKEND OR AFTER 3:00 P.M. ON THE DAY PRECEDING A HOLIDAY OR A WEEKEND.

14. ALL EXISTING PAVEMENT OR CONCRETE TO BE REMOVED SHALL BE SAWCUT ALONG LIMITS OF PROPOSED REMOVAL BEFORE COMMENCEMENT OF PAVEMENT REMOVAL.

15. REMOVED PAVEMENT, SIDEWALK, CURB AND GUTTER, ETC. SHALL BE LEGALLY DISPOSED OF BY THE CONTRACTOR AS PART OF THE BASE CONTRACT.

16. NO BURNING OR INCINERATION OF RUBBISH WILL BE PERMITTED ON SITE.

17. FOR REGULATED UTILITY LOCATIONS, THE CONTRACTOR SHALL CONTACT INDIANA811 AT 811 OR 800-382-5544. LOCAL GOVERNMENT AGENCIES SHOULD BE CONTACTED BY THE CONTRACTOR FOR LOCATION OF ALL NONREGULATED UTILITY LOCATIONS. CALL FOR LOCATES AT LEAST 48 HOURS IN ADVANCE OF CONSTRUCTION.

18. BEFORE EXCAVATING OVER OR ADJACENT TO ANY EXISTING UTILITIES, CONTRACTOR SHALL NOTIFY THE OWNER OF SUCH UTILITIES TO ENSURE THAT PROTECTIVE WORK WILL BE COORDINATED AND PERFORMED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE OWNER OF THE UTILITY INVOLVED. IF ANY EXISTING SERVICE LINES, UTILITIES AND UTILITY STRUCTURES WHICH ARE TO REMAIN IN SERVICE ARE UNCOVERED OR ENCOUNTERED DURING THIS OPERATION, THEY SHALL BE SAFEGUARDED, PROTECTED FROM DAMAGE AND SUPPORTED IF NECESSARY.

19. THE CONTRACTOR IS RESPONSIBLE FOR HAVING A SET OF "APPROVED" ENGINEERING PLANS WITH THE LATEST REVISION DATE ON THE JOB SITE PRIOR TO THE START OF CONSTRUCTION.

20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENTATION CONTROL AS DETAILED IN THE STORM WATER POLLUTION PREVENTION PLAN.

21. ALL CURB RADII REFER TO BACK OF CURB.

22. ANY AREAS THAT ARE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED IN CONFORMANCE WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION AND SHALL BE INCIDENTAL TO THE CONTRACT.

23. STREET PAVING AND CURBS TO REMAIN SHALL BE PROTECTED FROM DAMAGE AND IF DAMAGED, SHALL BE REPLACED PROMPTLY IN CONFORMANCE WITH THE CITY OF INDIANAPOLIS OR INDOT STANDARD SPECIFICATIONS IN MATERIALS AND WORKMANSHIP.

24. PROPOSED ELEVATIONS INDICATE FINISHED CONDITIONS. FOR ROUGH GRADING ELEVATIONS ALLOW FOR THICKNESS OF PROPOSED PAVING (ROADS, WALKS, DRIVES, ETC.) OR TOPSOIL AS INDICATED ON DRAWINGS.

25. CAD FILES ARE AVAILABLE FOR CONSTRUCTION LAYOUT UPON REQUEST.

26. BACKFILL SHALL BE PLACED NEXT TO THE CURB AS SOON AS PERMISSIBLE AFTER CONSTRUCTION TO PREVENT SCOURING AND UNDERCUTTING BY STORM WATER RUNOFF.

27. BUTT JOINTS SHALL BE PROVIDED WHEREVER NEW PAVEMENT ABUTS EXISTING PAVEMENT. ALL BUTT JOINTS SHALL BE CONSTRUCTED BY MILLING AND SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE BITUMINOUS SURFACE COURSE.

28. WHEN AN EXISTING DRAINAGE ROUTE, EITHER A STORM SEWER OR WATERWAY, IS INTERRUPTED DUE TO CONSTRUCTION, THE DRAINAGE ROUTE SHALL BE REESTABLISHED TO ORIGINAL CONDITIONS BY THE END OF THE SAME WORK DAY. POSITIVE DRAINAGE MUST BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.

29. PROVIDE SMOOTH VERTICAL CURVES THROUGH HIGH AND LOW POINTS INDICATED BY SPOT ELEVATIONS. PROVIDE UNIFORM SLOPES BETWEEN NEW AND EXISTING GRADES. AVOID RIDGES AND DEPRESSIONS.

30. FINAL ADJUSTMENT OF FIRE HYDRANTS, VALVE VAULTS AND MANHOLES TO FINISHED GRADE ARE INCIDENTAL TO THEIR COST.

31. ANY EXISTING UTILITY STRUCTURES REQUIRING ADJUSTMENT ARE TO BE ADJUSTED OR RECONSTRUCTED BY THE CONTRACTOR TO THE UTILITY OWNER'S SATISFACTION. ADJUSTMENTS OR RECONSTRUCTIONS NOT CALLED FOR ON THE PLANS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

32. ALL UTILITY CONNECTIONS TO EXISTING LINES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REGULATIONS AND TO THE SATISFACTION OF THE UTILITY OWNER.

33. PROVIDE TRENCH BACKFILL IN ACCORDANCE WITH THE DETAILS OF THE PLANS FOR ALL UTILITY LINES (OR AS OTHERWISE NOTED ON PLANS). BACKFILL SHALL BE PLACED AND COMPACTED PER THE CITY OF INDIANAPOLIS AND INDOT SPECIFICATIONS. COST OF BACKFILL IS TO BE CONSIDERED INCIDENTAL TO THE UTILITY WORK.

34. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

35. PRIOR TO DEMOBILIZATION, ALL WORK SHALL BE CLEANED AND INSPECTED TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION. THE COST OF THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

36. THE GENERAL CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES TO PROVIDE CABLE TV, PHONE, ELECTRIC, GAS AND IRRIGATION SERVICES. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING SITE LAYOUTS FOR THESE UTILITIES AND SHALL COORDINATE AND PROVIDE CONDUIT CROSSINGS AS REQUIRED. THIS COORDINATION SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT. ANY CONFLICTS IN UTILITIES SHALL BE CORRECTED BY THE GENERAL CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

37. BAND-SEAL CONNECTORS OR EQUIVALENT SHALL BE USED TO JOIN PIPES OF DISSIMILAR MATERIAL.

38. CONTRACTOR SHALL MAINTAIN ACCURATE RECORDS OF ALL CONSTRUCTION IN CONFORMANCE WITH ALL MUNICIPAL AND CLIENT REQUIREMENTS FOR USE IN PREPARING RECORD DRAWINGS.

39. THE SUBCONTRACTOR SHALL INSTALL A 2"x4"x6' POST ADJACENT TO THE TERMINUS OF UTILITY MAINS AND SERVICE LINES. POSTS SHALL BE MARKED IN ACCORDANCE WITH THE VILLAGE STANDARDS.

40. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING ANY EXCAVATION. ANY DEWATERING REQUIRED SHALL BE INCIDENTAL TO THE CONTRACT.

41. COPIES OF SOILS INVESTIGATION REPORTS MAY BE OBTAINED FROM THE OWNER. ANY BRACING, SHEETING OR SPECIAL CONSTRUCTION METHODS REQUIRED IN ORDER TO INSTALL THE PROPOSED IMPROVEMENTS SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE PROJECT. ANY ADDITIONAL SOILS DATA NEEDED TO CONFIRM THE CONTRACTOR'S OPINIONS OF THE SUBSOIL CONDITIONS SHALL BE DONE AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL OBTAIN THE OWNER'S WRITTEN AUTHORIZATION TO ACCESS THE SITE TO CONDUCT A SUPPLEMENTAL SOILS INVESTIGATION.

42. ALL FIELD TILE ENCOUNTERED DURING CONSTRUCTION OPERATIONS SHALL BE CONNECTED TO THE PROPOSED STORM SEWER OR EXTENDED TO OUTLET INTO A PROPOSED DRAINAGE WAY AS DETERMINED BY THE ENGINEER. IF THIS CANNOT BE ACCOMPLISHED, THEN IT SHALL BE REPAIRED WITH NEW PIPE OF SIMILAR SIZE AND MATERIAL TO THE ORIGINAL LINE AND PUT IN ACCEPTABLE OPERATIONAL CONDITION. A RECORD OF THE LOCATION OF ALL FIELD TILE FOR ON-SITE DRAIN PIPE ENCOUNTERED SHALL BE KEPT BY THE SUBCONTRACTOR AND SUBMITTED TO THE ENGINEER UPON COMPLETION OF THE PROJECT. ALL FIELD TILE REPAIRS SHALL BE CONSIDERED AS INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE PROVIDED.

43. THE ENGINEER AND OWNER ARE NOT RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, TIME OF PERFORMANCE, PROGRAMS OR FOR ANY SAFETY PRECAUTIONS USED BY THE CONTRACTOR. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR EXECUTION OF HIS/HER WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS.

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LEGEND

EXISTING	PROPOSED	DESCRIPTION
		RIGHT-OF-WAY LINE
		PROPERTY LINE (EXTERIOR)
		LOT LINE (INTERIOR)
		EASEMENT LINE
	x x	FENCE LINE
		CENTERLINE
		PROPERTY CORNER
710	710	CONTOUR
		CURB & GUTTER
		DEPRESSED CURB & GUTTER
		REVERSE PITCHED CURB
x 706.00	x 706.0	SPOT ELEVATION
782.62 / 782.12	782.62 / 782.12	*TOP OF CURB ELEVATION* / *EDGE OF PAVEMENT ELEVATION*
		UTILITY STUB
		SANITARY SEWER
		SANITARY FORCE MAIN
		STORM SEWER
W	W	WATER MAIN
G	G	GAS MAIN
T/E	T/E	UNDERGROUND TELEPHONE & ELECTRIC DUCT BANK
E	E	BURIED CABLE-ELECTRIC
T	T	BURIED CABLE-TELEPHONE
		ATLAS LOCATED UTILITY
		UTILITY STRUCTURE WITH CLOSED LID
		CURB INLET
		DRAINAGE STRUCTURE WITH OPEN LID
		FIRE HYDRANT
		VALVE IN VALVE BOX
		GATE VALVE IN VALVE VAULT
		POST INDICATOR VALVE
		THRUST BLOCK
12"		TREE
		TREE LINE
		CONCRETE HEADWALL
		SUBMERGED HEADWALL
		FLARED END SECTION (F.E.S.)
		GUY WIRES
		FLOOD LIGHT
		UTILITY POLE
		LIGHT STANDARD
		TRAFFIC SIGNAL POLE
		HAND HOLE
		SOIL BORING
		IRRIGATION HEADS
		SIGN
		TELEPHONE MANHOLE
		MONITORING WELL
		TELEPHONE PEDESTAL
		TRANSFORMER PAD
		UTILITY TO BE ABANDONED
	12"	FEATURE TO BE REMOVED
		STORMWATER FLOW DIRECTION
		STORMWATER OVERFLOW ROUTE
		DITCH CHECK
		INLET FILTER BASKET
		RIP RAP
		BOLLARD
SF	SF	SILT FENCE
		WATER MAIN PROTECTION
	C01	UTILITY CROSSING LABEL
		GUARDRAIL
		RAILROAD TRACKS
		RETAINING WALL
		REVISION DELINEATION
	CLL	CONSTRUCTION LIMIT LINE
		TREE PROTECTION FENCE

ABBREVIATIONS

A	ARC LENGTH
B-B	BACK TO BACK OF CURB
B/C	BACK OF CURB
BLDG	BUILDING
BM	BENCHMARK
B/P	BOTTOM OF PIPE
BV/VV	BUTTERFLY VALVE IN VALVE VAULT
C & G	CURB AND GUTTER
CB	CATCH BASIN
℄	CENTERLINE
CL	CLOSED LID
CO	CLEAN OUT
DIP	DUCTILE IRON PIPE
DIA	DIAMETER
DIWM	DUCTILE IRON WATER MAIN
DWG	DRAWING
E	EAST OR ELECTRIC OR EDGE
EJ	EXPANSION JOINT
ELEV	ELEVATION
E/P	EDGE OF PAVEMENT
EX.	EXISTING
F & CL	FRAME & CLOSED LID
F & G	FRAME & GRATE
F & OL	FRAME & OPEN LID
FES	FLARED END SECTION
F-F	FACE TO FACE OF CURB
FF	FINISHED FLOOR
F/G	FINISHED GRADE
FH	FIRE HYDRANT
F/L	FLOW LINE
G	GAS LINE
GV/VB	GATE VALVE IN VALVE BOX
GV/VV	GATE VALVE IN VALVE VAULT
HDCP	HANDICAP
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HDW	HEADWALL
HOR	HORIZONTAL
HP	HIGH POINT
HWL	HIGH WATER LEVEL
IE	INVERT ELEVATION
IN	INLET
LF	LINEAL FEET
LP	LOW POINT OR LIGHT POLE
L	LEFT
ME	MATCH EXISTING
MH	MANHOLE
MW	MONITORING WELL
N	NORTH
NIC	NOT IN CONTRACT / NOT INCLUDED
NWL	NORMAL WATER LEVEL
OC	ON CENTER
OL	OPEN LID
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE OR POINT OF COMPOUND CURVE
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PP	POWER POLE
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
PUE	PUBLIC UTILITY EASEMENT
PVC	POINT OF VERTICAL CURVATURE OR POLYVINYL CHLORIDE PIPE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
R	RADIUS OR RIGHT
RCP	REINFORCED CONCRETE PIPE
ROW	RIGHT OF WAY
S	SLOPE OR SOUTH
SAN	SANITARY
SF	SILTATION FENCE
SFM	SANITARY FORCE MAIN
SHT	SHEET
SHW	SUBMERGED HEADWALL
SMH	SANITARY MANHOLE
STA	STATION
ST	STORM STRUCTURE OR STORM SEWER
STMH	STORM MANHOLE
T	TANGENT LENGTH OR TELEPHONE
TOB	TOP OF BANK
TOS	TOE OF SLOPE
T/C	TOP OF CURB
T/P	TOP OF PIPE
T/W	TOP OF WALL
TY	TYPE
TYP	TYPICAL
UP	UTILITY POLE
VC	VERTICAL CURVE
VERT	VERTICAL
VCP	VITRIFIED CLAY PIPE
W	WEST
WM	WATER MAIN

REVISIONS

NO.	DATE	DESCRIPTION
1	09-15-23	REVISED PER CITY AND CITIZENS COMMENTS
2	10-18-23	REVISED PER CITIZENS COMMENTS
3	11-15-23	REVISED PER CITY AND CITIZENS COMMENTS
4	11-27-23	REVISED PER CITIZENS WATER COMMENTS
5	01-08-24	REVISED PER CITY COMMENTS
6	02-09-24	REVISED PER CITY COMMENTS
7	02-23-24	REVISED PER CITY COMMENTS
8	03-04-24	REVISED PER CITIZENS WATER COMMENTS

ORIGINAL ISSUE DATE: 07-07-2023

PROJECT NO.: 220851 S04
PROJECT MANAGER: JOR
DESIGNED BY: MRV
DRAWN BY: MRV

GENERAL NOTES, LEGEND AND ABBREVIATIONS

THE RIDGE ON WILLIAMS CREEK

INDIANAPOLIS, INDIANA

V3
619 N Pennsylvania Street
Indianapolis, IN 46204
317.423.0690
www.v3co.com

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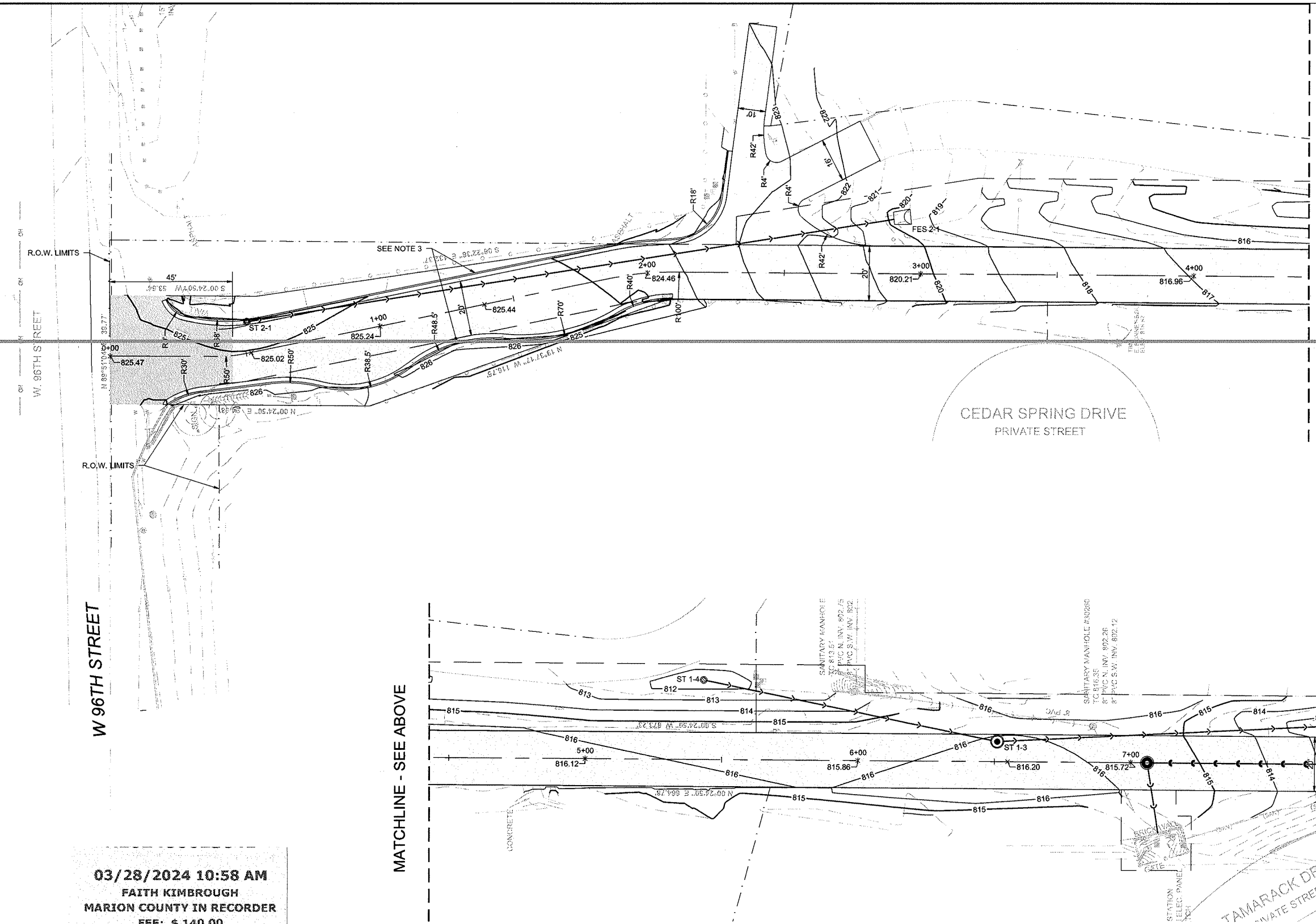
NOTES:

1. ALL ELEVATIONS SHOWN DEPICT FINISHED GRADE UNLESS OTHERWISE NOTED. SUBTRACT TOPSOIL THICKNESS OR PAVEMENT SECTION TO ESTABLISH SUBGRADE ELEVATIONS.
2. ALL DIMENSIONS SHOWN ARE TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
3. ALL CURB AND GUTTER SHALL BE COMBINED CURB AND GUTTER PER INDOT STANDARD DRAWING NO. E 605-CCCG-01 UNLESS OTHERWISE NOTED.



REVISIONS		
NO.	DATE	DESCRIPTION
7	02-23-24	REVISED PER CITY COMMENTS
8	03-04-24	REVISED PER CITIZENS WATER COMMENTS

ORIGINAL ISSUE DATE: 07-07-2023		
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1	08-15-23	REVISED PER CITY AND CITIZENS COMMENTS
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6	02-09-24	REVISED PER CITY COMMENTS

PROJECT NO: 220851 S04
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GRADING & SITE DEVELOPMENT PLAN

THE RIDGE ON WILLIAMS CREEK

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619 N Pennsylvania Street
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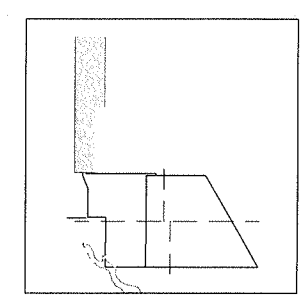
PAVING LEGEND

REGULAR HMA PAVEMENT

1.5" HMA SURFACE COURSE, 9.5mm
1.5" HMA INTERMEDIATE COURSE, 19.0mm
4" HMA BASE COURSE, 25.0mm
6" AGGREGATE BASE COURSE - TYPE IIIA

COLLECTOR STREET HMA PAVEMENT

1.5" HMA, 3, 70 SURFACE COURSE, 9.5mm
2.5" HMA, 3, 64 INTERMEDIATE COURSE, 19.0mm
3.5" HMA, 3, 64 BASE COURSE, 25.0mm
2.5" HMA, 3, 76 INTERMEDIATE COURSE, OG 19.0mm
3.0" HMA, 3, 64 BASE COURSE, 25.00mm
INDOT SUBGRADE TREATMENT, TYPE IC



KEY MAP
N.T.S.

GRAPHIC SCALE
20 10 0 20
1" = 20'

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MATCHLINE - SEE SHEET C3.0

MATCHLINE - SEE SHEET C3.3

CALIFORNIA LOT
56,791 SF
1.304 AC
MFPG = 805.83

MONTANA LOT
110,583 SF
2.539 AC
MFPG = 815.08

OREGON LOT
54,564 SF
1.253 AC
MFPG FRONT = 815.08
MFPG BACK = 804.59

MATCHLINE - SEE SHEET C3.2

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4. ALL FUTURE LAND DISTURBANCE ON CALIFORNIA, MONTANA, AND OREGON LOTS MUST DRAIN TO SOUTHWEST BASIN FOR WATER QUALITY AND DETENTION REQUIREMENTS.
5. ALL FUTURE SUBSTANTIAL IMPROVEMENTS TO THE CALIFORNIA, MONTANA, AND OREGON LOTS, INCLUDING THE ADDITION OF NEW STRUCTURES, SHALL HAVE AT LEAST 10 FEET OF HORIZONTAL SEPARATION AND 2 FEET OF VERTICAL SEPARATION FROM THE LOWEST GROUND ELEVATION NEXT TO A STRUCTURE TO THE 100-YEAR HIGH WATER ELEVATION. THEY MUST ALSO HAVE A LOWEST ELEVATION A MINIMUM OF 2 FEET ABOVE THE BASE FLOOD ELEVATION. MINIMUM FLOOD PROTECTION GRADES (MFPG) ARE PROVIDED ON EACH LOT SHOWN ABOVE.
6. THE BASE FLOOD ELEVATION VARIES ALONG THE LENGTH OF THIS PROJECT AND ELEVATIONS ARE PROVIDED ABOVE. BASED ON THE MARION COUNTY, INDIANA FLOOD INSURANCE STUDY DATED APRIL 16TH, 2016.
7. ALL ROOF DRAINS AND DOWNSPOUTS FOR FUTURE HOMES CONSTRUCTED ON LOTS SHALL BE DIRECTED TO THE FRONT YARDS AND INTO OR THROUGH THE STORM CONVEYANCE SYSTEMS. ALL ROOF SURFACES SHALL BE ROUTED THROUGH THE STORMWATER BMP AND DETENTION BASIN AT THE SOUTHWEST CORNER OF THE PROJECT SITE.

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4" HMA BASE COURSE, 25.0mm
6" AGGREGATE BASE COURSE - TYPE IIIA

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1" = 20'

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8	03-04-24	REVISED PER CITIZENS WATER COMMENTS

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MATCHLINE - SEE SHEET C3.1

MATCHLINE - SEE SHEET C3.3

MATCHLINE - SEE SHEET C3.4

WASHINGTON LOT
60,395 SF
1.386 AC
MFPG FRONT = 815.08
MFPG BACK = 797.04

COLORADO LOT
59,721 SF
1.371 AC
MFPG FRONT = 815.08
MFPG BACK = 791.36

UTAH LOT
60,395 SF
1.386 AC
MFPG FRONT = 810.20
MFPG BACK 795.75

PROPOSED DETENTION BASIN
EMERGENCY OVERFLOW ELEVATION: 793.50
DETENTION VOLUME PROVIDED: 0.908 AC-FT
INVERT: 789.10
2 YEAR - 791.17
10 YEAR - 792.43
100 YEAR - 793.40

FES 3-1
ST 3-1
ST 3-1A
FES 3-2
ST 5-5

CONTRACTOR TO REMOVE AND REPLACE WOOD WALKWAY AS PART OF CONSTRUCTION OF POND OUTLET PIPE

DRAINAGE EASEMENT
EMERGENCY OVERFLOW WEIR
FLOODPLAIN BOUNDARY
PROPOSED FLOODPLAIN BOUNDARY
LOT LINES (TYP.)
BFE: 791.64
IRON ROD FOUND
FENCE POST
STEEL POST
LATHE FOUND
7% SLOPE
10% SLOPE
15% SLOPE
1.00%
1.20%
1.50%
251.06'
N 00°24'00"E 310.55'

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6. THE BASE FLOOD ELEVATION ESTABLISHED AT THE SOUTHWEST CORNER OF THE PROPERTY WAS DETERMINED VIA HEC-RAS MODELING OF THE WATERSHED AND HOOVER RUN BY V3.
7. ALL ROOF DRAINS AND DOWNSPOUTS FOR FUTURE HOMES CONSTRUCTED ON LOTS SHALL BE DIRECTED TO THE FRONT YARDS AND INTO OR THROUGH THE STORM CONVEYANCE SYSTEMS. ALL ROOF SURFACES SHALL BE ROUTED THROUGH THE STORMWATER BMP AND DETENTION BASIN AT THE SOUTHWEST CORNER OF THE PROJECT SITE.

Indiana 811
Know what's below. Call before you dig.

JAMES O. RINEHART
REGISTERED
No. 10200405
STATE OF INDIANA
PROFESSIONAL ENGINEER

PAVING LEGEND

REGULAR HMA PAVEMENT

1.5" HMA SURFACE COURSE, 9.5mm
1.5" HMA INTERMEDIATE COURSE, 19.0mm
4" HMA BASE COURSE, 25.0mm
6" AGGREGATE BASE COURSE - TYPE IIIA

KEY MAP
N.T.S.

GRAPHIC SCALE
20 10 0 20
1" = 20'

REVISIONS

NO	DATE	DESCRIPTION
7	02-23-24	REVISED PER CITY COMMENTS
8	03 04 24	REVISED PER CITIZENS WATER COMMENTS

ORIGINAL ISSUE DATE: 07-07-2023

NO	DATE	DESCRIPTION
1	09-15-23	REVISED PER CITY AND CITIZENS COMMENTS
2	10-18-23	REVISED PER CITIZENS COMMENTS
3	11-15-23	REVISED PER CITY AND CITIZENS COMMENTS
4	11-27-23	REVISED PER CITIZENS WATER COMMENTS
5	01-08-24	REVISED PER CITY COMMENTS
6	02-09-24	REVISED PER CITY COMMENTS

PROJECT NO: 22051 S04
PROJECT MANAGER: JOR
DESIGNED BY: MRV
DRAWN BY: MRV

GRADING & SITE DEVELOPMENT PLAN

THE RIDGE ON WILLIAMS CREEK

INDIANAPOLIS
INDIANA

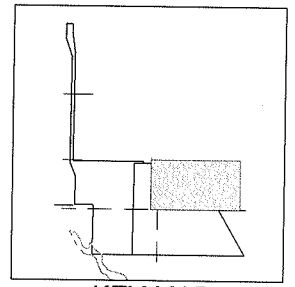
619 N Pennsylvania Street
Indianapolis, IN 46204
317.423.0690
www.v3co.com

DRAWING NO.
C3.2

N:\2022\20208511\Drawings\ACAD\LDS\04\Sheet Drawings\C3.0 GradSiteDev.dwg, 2/26/2024

NOTES:

1. ALL ELEVATIONS SHOWN DEPICT FINISHED GRADE UNLESS OTHERWISE NOTED. SUBTRACT TOPSOIL THICKNESS OR PAVEMENT SECTION TO ESTABLISH SUBGRADE ELEVATIONS.
2. ALL DIMENSIONS SHOWN ARE TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
3. ALL CURB AND GUTTER SHALL BE COMBINED CURB AND GUTTER PER INDOT STANDARD DRAWING NO. E 605-CCCG-01 UNLESS OTHERWISE NOTED.
4. ALL FUTURE LAND DISTURBANCE ON MONTANA LOT MUST DRAIN TO SOUTHWEST BASIN FOR WATER QUALITY AND DETENTION REQUIREMENTS.
5. ALL FUTURE SUBSTANTIAL IMPROVEMENTS TO THE MONTANA LOT, INCLUDING THE ADDITION OF NEW STRUCTURES, SHALL HAVE AT LEAST 10 FEET OF HORIZONTAL SEPARATION AND 2 FEET OF VERTICAL SEPARATION FROM THE LOWEST GROUND ELEVATION NEXT TO A STRUCTURE TO THE 100-YEAR HIGH WATER ELEVATION. THEY MUST ALSO HAVE A LOWEST ELEVATION A MINIMUM OF 2 FEET ABOVE THE BASE FLOOD ELEVATION. MINIMUM FLOOD PROTECTION GRADES (MFPG) ARE PROVIDED ON EACH LOT SHOWN BELOW.
6. THE BASE FLOOD ELEVATION VARIES ALONG THE LENGTH OF THIS PROJECT AND ELEVATIONS ARE PROVIDED BELOW, BASED ON THE MARION COUNTY, INDIANA FLOOD INSURANCE STUDY DATED APRIL 16TH, 2016.
7. ALL ROOF DRAINS AND DOWNSPOUTS FOR FUTURE HOMES CONSTRUCTED ON LOTS SHALL BE DIRECTED TO THE FRONT YARDS AND INTO OR THROUGH THE STORM CONVEYANCE SYSTEMS. ALL ROOF SURFACES SHALL BE ROUTED THROUGH THE STORMWATER BMP AND DETENTION BASIN AT THE SOUTHWEST CORNER OF THE PROJECT SITE.



KEY MAP
N.T.S.

MATCHLINE - SEE SHEET C3.1

MONTANA LOT
110,583 SF
2.539 AC
MFPG = 815.08

WOOD DECK
BFE: 790.13
5+00
BFE: 790.00
5% SLOPE
DRAINAGE EASEMENT
CONSTRUCTION LIMITS OF BANK STABILIZATION
FLOODPLAIN BOUNDARY
FLOODWAY BOUNDARY
PROPOSED FLOODPLAIN BOUNDARY
DRAINAGE EASEMENT
BFE: 789.50
EDGE OF WATER
BFE: 789.36
PROPOSED FLOODPLAIN BOUNDARY
LOT LINES (TYP.)
FES 4-2
FES 4-1
Lot 43
Lot 42
Drain
10TH AVE

MATCHLINE - SEE SHEET C3.2

MATCHLINE - SEE SHEET C3.4

LEGEND
NATURALIZED TRAIL

Indiana 811 Know what's below. Call before you dig.

A202400023641
03/28/2024 10:58 AM
FAITH KIMBROUGH
MARION COUNTY IN RECORDER
FEE: $ 140.00
PAGES: 60
By: JN

JAMES O. RINEHART IV
REGISTERED
No. 10010045
STATE OF INDIANA
PROFESSIONAL ENGINEER

GRAPHIC SCALE
20 10 0 20
1" = 20'

REVISIONS

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5	01-08-24	REVISED PER CITY COMMENTS
6	02-09-24	REVISED PER CITY COMMENTS

ORIGINAL ISSUE DATE: 07-07-2023

PROJECT NO.: 220851 S04
PROJECT MANAGER: JOR
DESIGNED BY: MRV
DRAWN BY: MRV

GRADING & SITE DEVELOPMENT PLAN

THE RIDGE ON WILLIAMS CREEK

INDIANAPOLIS, INDIANA

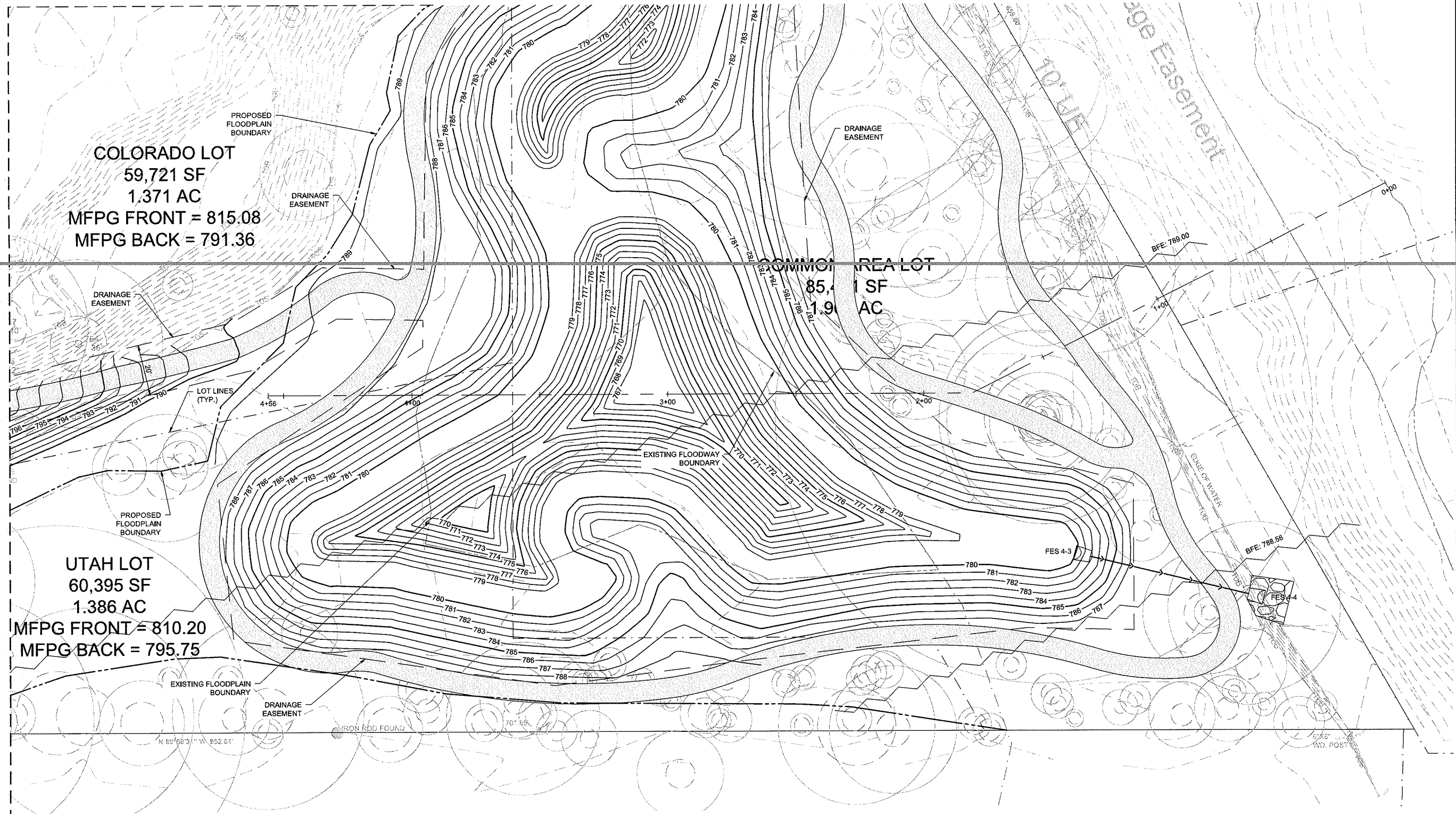
619 N Pennsylvania Street
Indianapolis, IN 46204
317.423.0690
www.v3co.com

DRAWING NO.
C3.3

N:\2022\220851\Drawings\ACAD\LDS04\Sheet Drawings\C3.0 GradSiteDev.dwg 2/23/2024

MATCHLINE - SEE SHEET C3.3

MATCHLINE - SEE SHEET C3.2



LEGEND

NATURALIZED TRAIL

Indiana 811
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A202400023641
03/28/2024 10:58 AM
FAITH KIMBROUGH
MARION COUNTY IN RECORDER
FEE: $ 140.00
PAGES: 60
By: JN

JAMES O. RINEHART IV
REGISTERED
NO. 10200193
STATE OF INDIANA
PROFESSIONAL ENGINEER

NOTES:

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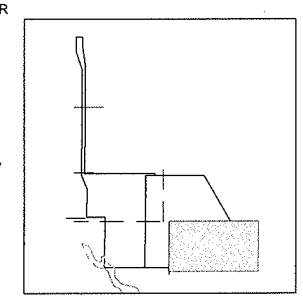

KEY MAP
N.T.S.

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1" = 20'

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6	02-09-24	REVISED PER CITY COMMENTS

PROJECT NO.: 220851.SO4
PROJECT MANAGER: JOR
DESIGNED BY: MRV
DRAWN BY: MRV

GRADING & SITE DEVELOPMENT PLAN

THE RIDGE ON WILLIAMS CREEK

INDIANAPOLIS INDIANA

619 N Pennsylvania Street
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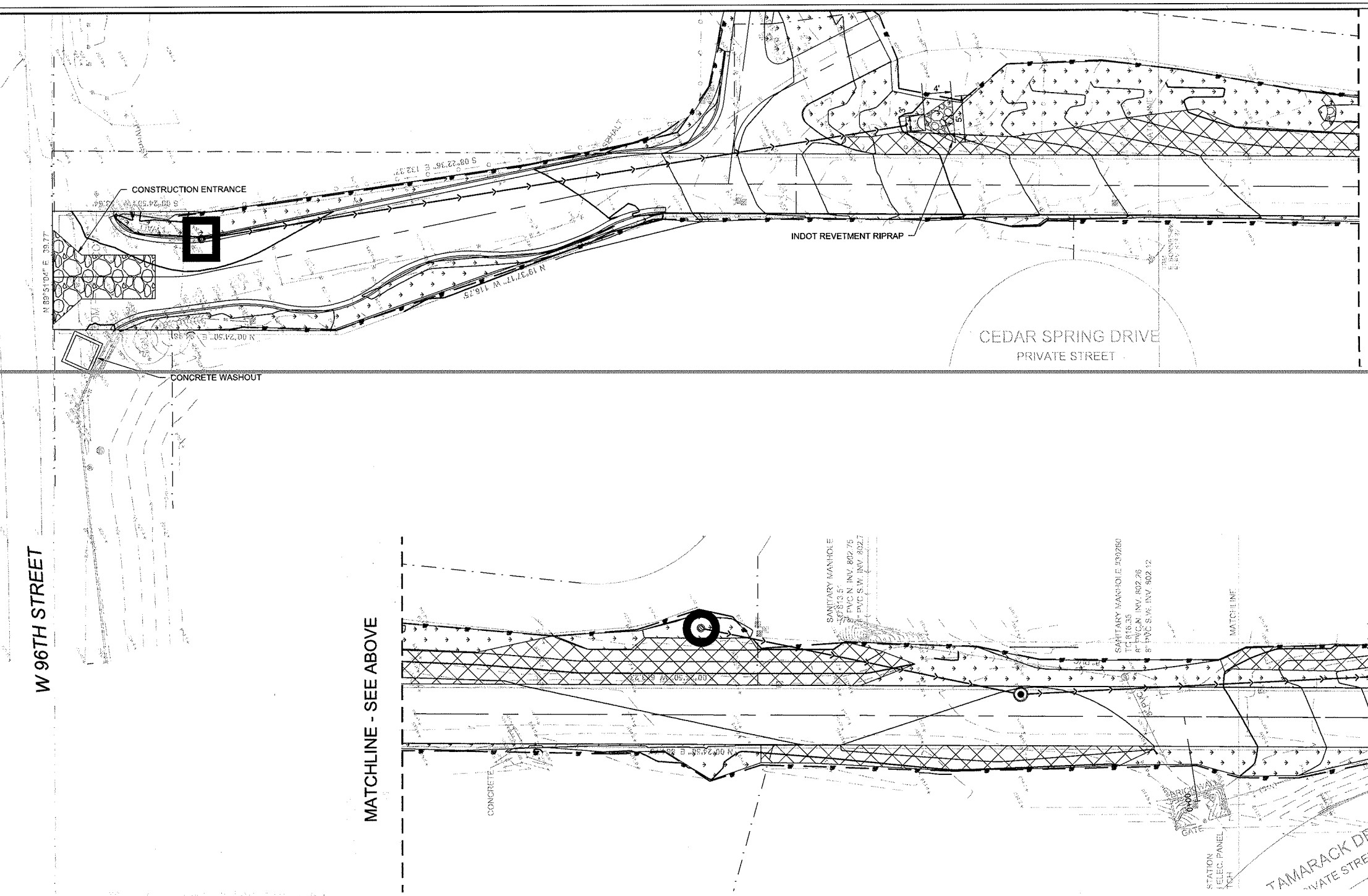
DRAWING NO.
C3.4



A202400023641
03/28/2024 10:58 AM
FAITH KIMBROUGH
MARION COUNTY IN RECORDER
FEE: $ 140.00
PAGES: 60
By: JN

Indiana 811
Know what's below. Call before you dig.

LEGEND

- PROPOSED SILT FENCE, SEE SHEET C4.11
- CONSTRUCTION STAGING/STOCKPILE AREAS
- PROPOSED YARD INLET PROTECTION SEE SHEET C4.10
- PROPOSED PAVEMENT INLET PROTECTION SEE SHEET C4.11
- PROPOSED CHECK DAM SEE SHEET C4.10 FOR DETAILS
- EROSION CONTROL BLANKET, SEE SHEET C4.10
- PERMENANT SEEDING AREA, SEE SHEET C4.11 FOR MIXTURE
- TREE PROTECTION FENCING, SEE SHEET C4.10 FOR DETAILS
- RIP RAP AT END SECTIONS, SEE SHEET C4.11 FOR DETAILS

NOTES:

1. NO EARTH DISTURBING ACTIVITIES MAY TAKE PLACE WITHOUT AN APPROVED STORM WATER MANAGEMENT PERMIT.
2. ALL DISCHARGE OF CONTAMINATED WATER DUE TO DEWATERING SHALLOUTLET THROUGH EXISTING VEGETATION OR FILTER BAGS THAT WILL NOT ADVERSELY IMPACT STORM WATER QUALITY.
3. ANY AREAS DISTURBED DUE TO CONSTRUCTION SHALL BE RE-SEEDED WITH TURF UNLESS NOTED OTHERWISE ON THE PLANS. SEE EROSION CONTROL DETAILS FOR SEED MIXES.
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7. PORTABLE TOILETS MUST BE ANCHORED TO PREVENT SPILLS.
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12. ALL PROPOSED EROSION AND SEDIMENT CONTROL SHALL BE IN CONFORMANCE WITH CHAPTER 600 OF THE CITY OF INDIANAPOLIS STORMWATER SPECIFICATIONS MANUAL, LATEST EDITION. DISCREPANCIES BETWEEN THE PLANS AND THE MANUAL SHALL NOT ALLEVIATE THE CONTRACTOR FROM ADHERING TO THE REQUIREMENTS AS SET FORTH IN THE MANUAL.
13. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES MAY BE REQUIRED BY THE INSPECTOR.

JAMES O. RUMPLEY — REGISTERED — No. 10006195 — STATE OF INDIANA — PROFESSIONAL ENGINEER

GRAPHIC SCALE
20 10 0 20
1" = 20'

REVISIONS

NO	DATE	DESCRIPTION
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ORIGINAL ISSUE DATE: 07-07-2023

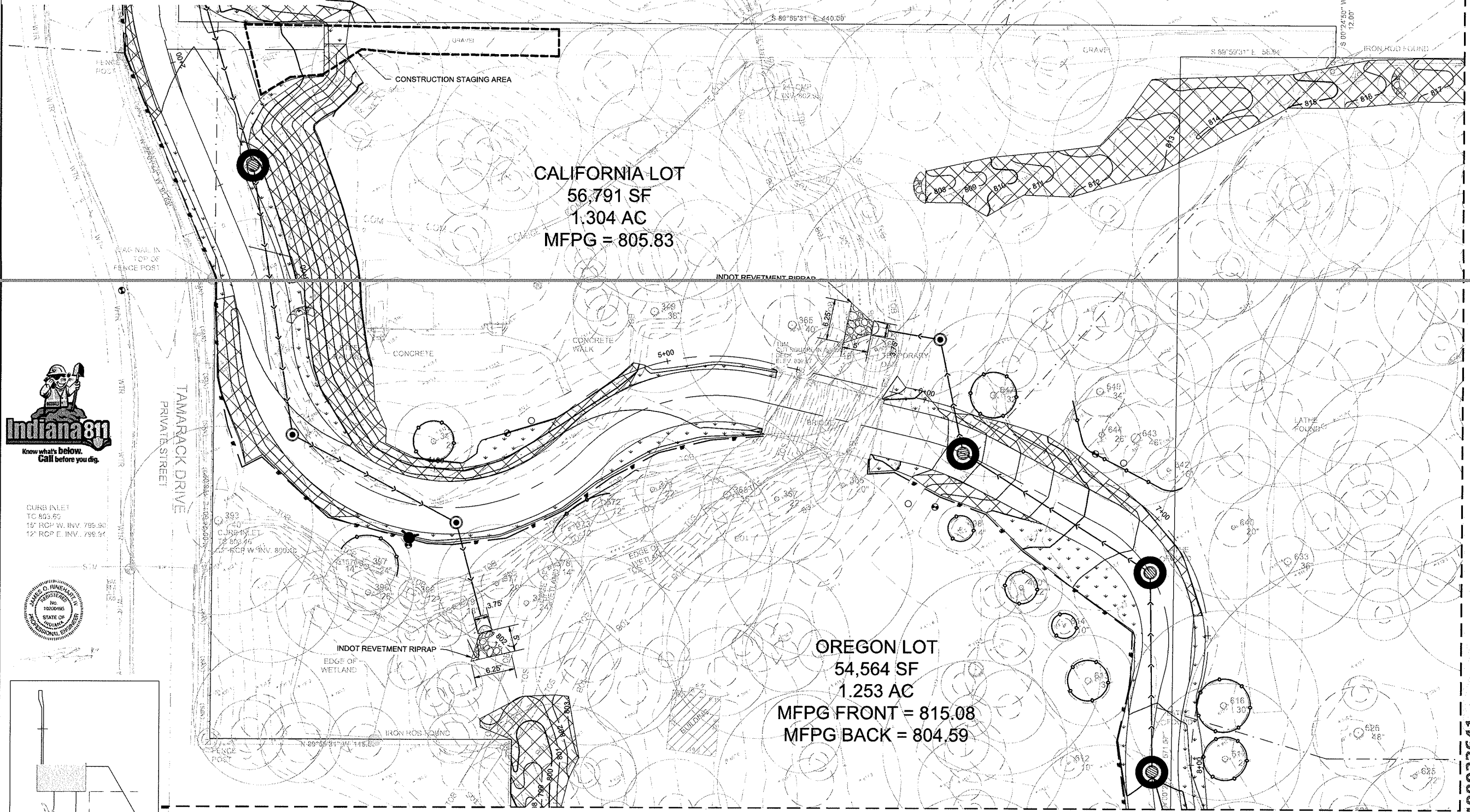
PROJECT NO: 220851 S04
PROJECT MANAGER: JOR
DESIGNED BY: MRV
DRAWN BY: MRV

EROSION CONTROL PLAN
THE RIDGE ON WILLIAMS CREEK
INDIANAPOLIS, INDIANA

619 N Pennsylvania Street
Indianapolis, IN 46204
317.423.0690
www.v3co.com

DRAWING NO.
C4.5

MATCHLINE - SEE SHEET C4.5



MATCHLINE - SEE SHEET C4.7

KEY MAP
N.T.S.

LEGEND

- PROPOSED SILT FENCE, SEE SHEET C4.11
- CONSTRUCTION STAGING/STOCKPILE AREAS
- PROPOSED YARD INLET PROTECTION SEE SHEET C4.10
- PROPOSED PAVEMENT INLET PROTECTION SEE SHEET C4.11
- PROPOSED CHECK DAM SEE SHEET C4.10 FOR DETAILS
- EROSION CONTROL BLANKET, SEE SHEET C4.10
- PERMENANT SEEDING AREA, SEE SHEET C4.11 FOR MIXTURE
- TREE PROTECTION FENCING, SEE SHEET C4.10 FOR DETAILS
- RIP RAP AT END SECTIONS, SEE SHEET C4.11 FOR DETAILS

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GRAPHIC SCALE
20 10 0 20
1" = 20'

A202400023641
03/28/2024 10:58 AM
FAITH KIMBROUGH
MARION COUNTY IN RECORDER
FEE: $ 140.00
PAGES: 60
By: JN

REVISIONS

NO	DATE	DESCRIPTION
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ORIGINAL ISSUE DATE: 07-07-2023

NO	DATE	DESCRIPTION
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4	11-27-23	REVISED PER CITIZEN
5	01-08-24	REVISED PER CITY COMMENTS
6	02-09-24	REVISED PER CITY COMMENTS

PROJECT NO.: 220951 S04
PROJECT MANAGER: JOR
DESIGNED BY: MRV
DRAWN BY: MRV

EROSION CONTROL PLAN

THE RIDGE ON WILLIAMS CREEK

INDIANAPOLIS

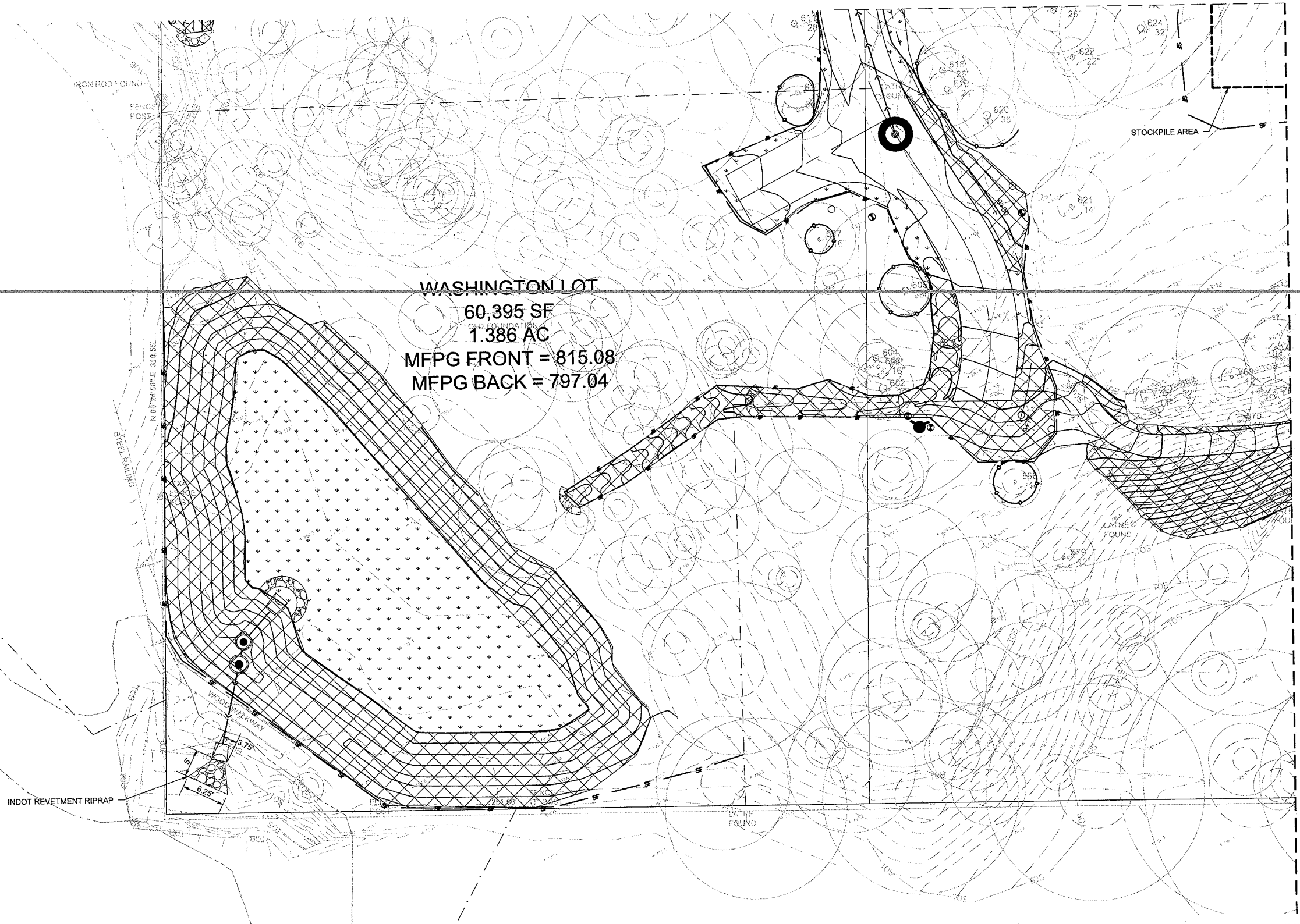
619 N Pennsylvania Street
Indianapolis, IN 46204
317.423.0990
www.v3co.com

DRAWING NO.
C4.6

N:\2022\220951\Drawings\ACAD\LDS04\Sheet Drawings\C4.5 Eros.dwg, 2/23/2024

MATCHLINE - SEE SHEET C4.6

MATCHLINE - SEE SHEET C4.8



MATCHLINE - SEE SHEET C4.9

A202400023641
03/28/2024 10:58 AM
FAITH KIMBROUGH
MARION COUNTY IN RECORDER
FEE: $ 140.00
PAGES: 60
By: JN

JAMES O. RINEHART
REGISTERED
NO 10200435
STATE OF INDIANA
PROFESSIONAL ENGINEER

Indiana 811
Know what's below. Call before you dig.

KEY MAP
N.T.S.

LEGEND

- PROPOSED SILT FENCE, SEE SHEET C4.11
- CONSTRUCTION STAGING/STOCKPILE AREAS
- PROPOSED YARD INLET PROTECTION SEE SHEET C4.10
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- PROPOSED CHECK DAM SEE SHEET C4.10 FOR DETAILS
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- RIP RAP AT END SECTIONS, SEE SHEET C4.11 FOR DETAILS

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ORIGINAL ISSUE DATE: 07-07-2023

PROJECT NO: 220851 S04
PROJECT MANAGER: JOR
DESIGNED BY: MRV
DRAWN BY: MRV

EROSION CONTROL PLAN

THE RIDGE ON WILLIAMS CREEK

INDIANAPOLIS

619 N Pennsylvania Street
Indianapolis, IN 46204
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www.v3co.com

DRAWING NO.
C4.7

MATCHLINE - SEE SHEET C4.6

MONTANA LOT
110,583 SF
2.539 AC
MFPG = 815.08

STOCKPILE AREA

MATCHLINE - SEE SHEET C4.7

MATCHLINE - SEE SHEET C4.9

LEGEND

- PROPOSED SILT FENCE, SEE SHEET C4.11
- EROSION CONTROL BLANKET, SEE SHEET C4.10
- RIP RAP AT END SECTIONS, SEE SHEET C4.11 FOR DETAILS

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10. THE CITY OF INDIANAPOLIS RESERVES THE RIGHT TO REQUIRE ADDITIONAL ONSITE CONTROLS AS DEEMED NECESSARY TO MAINTAIN COMPLIANCE WITH THE CITY'S STORMWATER MANAGEMENT ORDINANCE. ALL EROSION AND SEDIMENT CONTROLS, BEST MANAGEMENT PRACTICES AND POLLUTION PREVENTION MEASURES MUST BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE INDIANA STORMWATER QUALITY MANUAL.
11. PUBLIC AND PRIVATE ROADWAYS SHALL BE KEPT CLEARED OF ACCUMULATED SEDIMENT. BULK CLEARING OF ACCUMULATED SEDIMENT SHALL NOT INCLUDE FLUSHING THE AREA WITH WATER. PROJECTS SUBJECT TO IDEM's CSGP SHALL REMOVE SEDIMENT FROM PUBLIC RIGHTS-OF-WAY NOT EXCLUSIVE OF CONSTRUCTION TRAFFIC AT THE END OF EACH DAY PER THE CSGP REQUIREMENTS.
12. ALL PROPOSED EROSION AND SEDIMENT CONTROL SHALL BE IN CONFORMANCE WITH CHAPTER 600 OF THE CITY OF INDIANAPOLIS STORMWATER SPECIFICATIONS MANUAL, LATEST EDITION. DISCREPANCIES BETWEEN THE PLANS AND THE MANUAL SHALL NOT ALLEVIATE THE CONTRACTOR FROM ADHERING TO THE REQUIREMENTS AS SET FORTH IN THE MANUAL.
13. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES MAY BE REQUIRED BY THE INSPECTOR.

Indiana 811 Know what's below. Call before you dig.

KEY MAP
N.T.S.

GRAPHIC SCALE
20 10 0 20
1" = 20'

JAMES D. DINEEN IV
REGISTERED
NO.
10300193
STATE OF
INDIANA
PROFESSIONAL ENGINEER

REVISIONS

NO.	DATE	DESCRIPTION
7	02-23-24	REVISED PER CITY COMMENTS
8	03.04.24	REVISED PER CITIZENS WATER COMMENTS

PROJECT NO: 220851 S04
PROJECT MANAGER: JOR
DESIGNED BY: MRV
DRAWN BY: MRV

ORIGINAL ISSUE DATE: 07-07-2023

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EROSION CONTROL PLAN

THE RIDGE ON WILLIAMS CREEK

INDIANAPOLIS, INDIANA

619 N Pennsylvania Street
Indianapolis, IN 46204
317.423.0690
www.v3co.com

DRAWING NO.
C4.8

MATCHLINE - SEE SHEET C4.8

MATCHLINE - SEE SHEET C4.7

STOCKPILE AREA

COLORADO LOT
59,721 SF
1.371 AC
MFPG FRONT = 815.08
MFPG BACK = 791.36

COMMON AREA LOT
85,471 SF
1.962 AC

UTAH LOT
60,395 SF
1.386 AC
MFPG FRONT = 810.20
MFPG BACK = 795.75

N 89°58'37" W 852.51'

FAITH KIMBROUGH
MARION COUNTY IN RECORDER
FEE: $ 140.00
PAGES: 60
By: JN

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LEGEND

- PROPOSED SILT FENCE, SEE SHEET C4.11
- EROSION CONTROL BLANKET, SEE SHEET C4.10
- RIP RAP AT END SECTIONS, SEE SHEET C4.11 FOR DETAILS

NOTES:

1. NO EARTH DISTURBING ACTIVITIES MAY TAKE PLACE WITHOUT AN APPROVED STORM WATER MANAGEMENT PERMIT.
2. ALL DISCHARGE OF CONTAMINATED WATER DUE TO DEWATERING SHALLOUTLET THROUGH EXISTING VEGETATION OR FILTER BAGS THAT WILL NOT ADVERSELY IMPACT STORM WATER QUALITY.
3. ANY AREAS DISTURBED DUE TO CONSTRUCTION SHALL BE RE-SEEDED WITH TURF UNLESS NOTED OTHERWISE ON THE PLANS. SEE EROSION CONTROL DETAILS FOR SEED MIXES.
4. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED IN THE FIELD BY THE INSPECTOR.
5. IF SITE REMAINS INACTIVE FOR A PERIOD OF 2 WEEKS, THEN STABILIZATION IS REQUIRED TO TAKE PLACE IN THE FORM OF TEMPORARY SEEDING, MULCH, OR SPRAY ON POLYMER.
6. EROSION CONTROL BLANKET IS REQUIRED FOR ALL SLOPES 3:1 OR GREATER.
7. PORTABLE TOILETS MUST BE ANCHORED TO PREVENT SPILLS.
8. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE CITY OF WESTFIELD PRIOR TO ANY CONSTRUCTING ON THE SITE BEING STARTED. ALL CONSTRUCTION SEQUENCING SHALL BE AGREED UPON PRIOR TO THE START OF CONSTRUCTION.
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JAMES O. RINEHART IV REGISTERED No. 10200165 STATE OF INDIANA PROFESSIONAL ENGINEER

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PROJECT NO.: 220851 SD4
PROJECT MANAGER: JOR
DESIGNED BY: MRV
DRAWN BY: MRV

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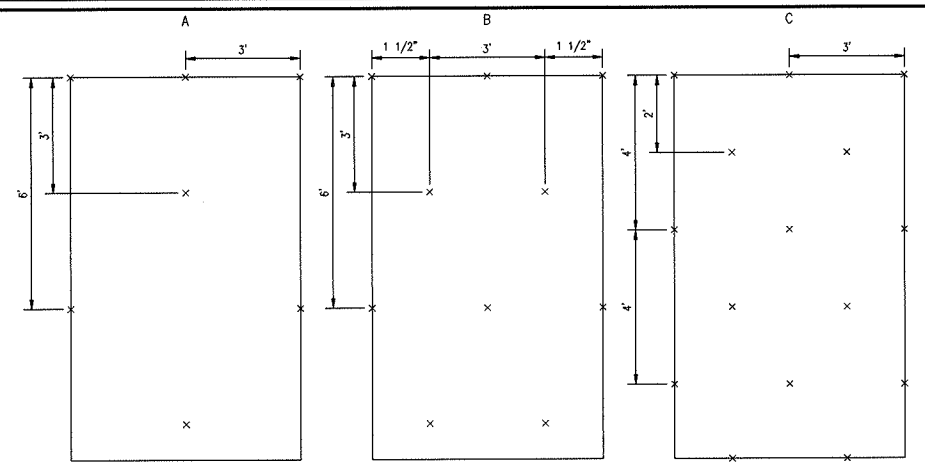
DRAWING NO.
C4.9

N:\2022\220851\Drawings\CAD\LDSD4\Sheet Drawings\C4.5 Eros.dwg, 2/23/2024

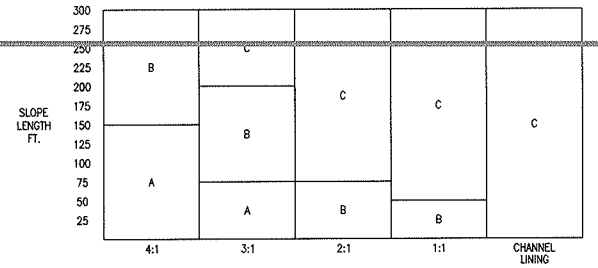


GENERAL STAPLE RECOMMENDATIONS

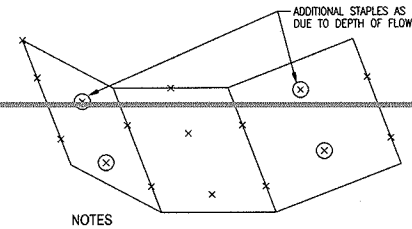
Erosion Control Blanket

Installation
1. Select the type and weight of erosion control blanket to fit the site conditions (e.g., slope, channel, flow velocity) per the manufacturer's specifications.
2. Prepare the seedbed, add soil amendments, and permanently seed the area immediately following seedbed preparation.
3. Lay erosion control blankets on the seeded area so that they are in continuous contact with the soil with each up-slope or up-stream blanket overlapping the down-slope or down-stream blanket by at least eight inches, or follow manufacturer's recommendations.
4. Tuck the uppermost edge of the upper blankets into a check slot (slit trench), backfill with soil and tamp down. In certain applications, the manufacturer may require additional check slots at specific locations down slope from the uppermost edge of the upper blankets.
5. Anchor the blankets in place by driving staples, pins, or stakes through the blanket and into the underlying soil. Follow an anchoring pattern appropriate for the site conditions and as recommended by the manufacturer.

Maintenance
- Inspect within 24 hours of each rain event and at least once every seven calendar days.
- Check for erosion or displacement of the blanket.
- If any area shows erosion, pull back that portion of the blanket covering the eroded area, add soil and tamp, reseed the area, replace and staple the blanket.



SLOPE GRADIENT



NOTES

CHANNEL LININGS UTILIZE STAPLE PATTERN "C" WITH ADDITIONAL STAPLES ON SIDE SLOPES AT PROJECTED WATER LINE.

STAPLE PATTERNS APPLY TO ALL NORTH AMERICAN GREEN EROSION CONTROL BLANKETS. STAPLE PATTERNS MAY VARY DEPENDING UPON SOIL TYPE AND AVERAGE RAINFALL.

AT SLOPE LENGTHS GREATER THAN 300 FEET OR WHERE DRAINAGE OVER LARGE AREAS IS DIRECTED ONTO THE BLANKETS, STAPLE PATTERN "C" SHOULD BE UTILIZED.

EROSION CONTROL MAT INSTALLATION GUIDE DETAIL

NOT TO SCALE

Temporary Construction Entrance

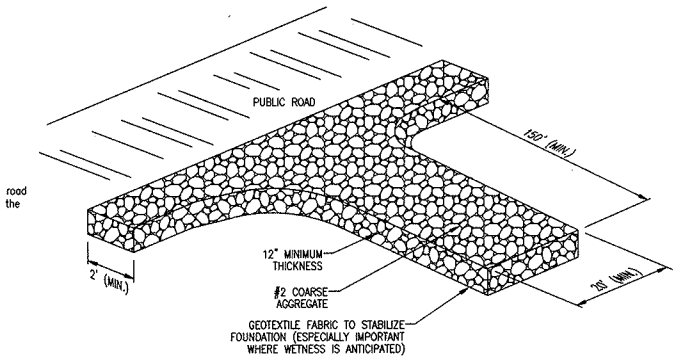
Dimensions
- Width – 20 feet minimum or full width of entrance/exit roadway, whichever is greater.
- Length – 150 feet minimum (length can be shorter for small sites).
- Thickness – eight inches minimum.

Washing Facility (optional)
- Level area with three inch, or larger, washed aggregate or install a commercial wash rack.
- Divert waste water to a sediment trap or basin.

Installation

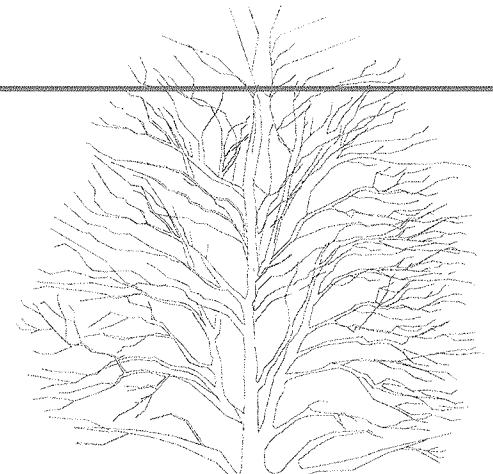
1. Remove all vegetation and other objectionable material from the foundation area.
2. Grade foundation and crown for positive drainage. If the slope of the construction entrance is toward a public road and exceeds two percent, construct an eight inch high diversion ridge with a ratio of 3-to-1 side slopes across the foundation area about 15 feet from the entrance to divert runoff away from the road.
3. Install a culvert pipe under the pad if needed to maintain proper public road drainage.
4. If wet conditions are anticipated, place geotextile fabric on the graded foundation to improve stability.
5. Place aggregate (INDOT CA No. 2) to the dimensions and grade shown in the construction plans, leaving the surface smooth and sloped for drainage.

Maintenance
- Inspect daily.
- Reshape pad as needed for drainage and runoff control.
- Top dress with clean aggregate as needed.
- Immediately remove mud and sediment tracked or washed onto public roads.
- Flushing should only be used if the water can be conveyed into a sediment trap or basin.



TEMPORARY CONSTRUCTION ENTRANCE

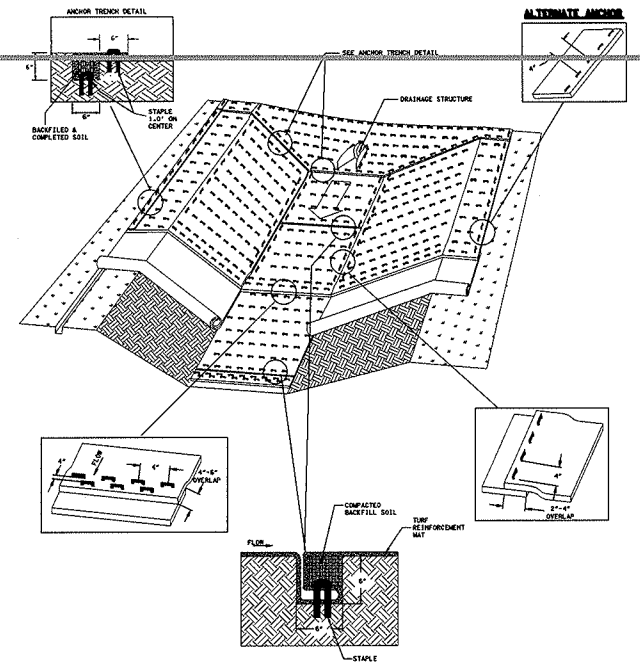
NOT TO SCALE



NOTES:
1. EITHER PLASTIC OR WOOD, ORANGE SNOW FENCING OF 4-FOOT HEIGHT SHALL BE INSTALLED AT OR BEYOND THE DRIP LINE, UNLESS MORE SUBSTANTIAL FENCING IS REQUIRED.
2. STAKES SHALL BE 5' METAL "T" POLES SPACED NO FURTHER APART THAN 4' ON CENTER.
3. FENCING SHALL NOT BE INSTALLED CLOSER TO THE TREE THAN THE DRIP LINE OF THOSE TREES TO BE SAVED.
4. FENCING SHALL BE ERECTED PRIOR TO ANY CONSTRUCTION ACTIVITY.
5. UNDER NO CIRCUMSTANCE SHALL THE PROTECTIVE FENCING BE REMOVED WITHOUT PROPER APPROVAL FROM THE CITY.
6. NO PERSON SHALL CONDUCT ANY ACTIVITY WITHIN THE AREAS PROPOSED TO REMAIN. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO:
   - 6.1. NO SOLVENTS OR CHEMICALS WITHIN THE PROTECTED AREAS.
   - 6.2. NO BUILDING MATERIALS OR CONSTRUCTION EQUIPMENT WITHIN THE PROTECTED AREAS
   - 6.3. NO GRADE CHANGES, INCLUDING FILL, WITHIN THE PROTECTED AREAS.
   - 6.4. NO REMOVAL OF VEGETATION FROM THE GROUND UP WITHOUT PERMISSION FROM THE CITY.
   - 6.5. ANY REQUIRED SWALE NEEDS TO BE DIRECTED AROUND THE PROTECTED AREAS. IN INSTANCES WHERE SWALES ARE APPROVED THROUGH A PROTECTED AREA, THE SWALES NEED TO BE HAND DUG. MACHINERY OF ANY KIND IS PROHIBIT.
7. REGULATED WOODLANDS OR REGULATED TREES ADJACENT TO THE PROPERTY ARE ALSO REQUIRED TO BE PROTECTED.

TREE PROTECTION FENCE

NOT TO SCALE



MAINTENANCE
1. VISUALLY INSPECT FOR SIGNS OF SCOURING OR AREAS WHERE THE MATTING IS NO LONGER ANCHORED FIRMLY TO THE GROUND.
2. REANCHOR MAT IF NEEDED.
3. RESEED AS NECESSARY.

TURF REINFORCEMENT MAT DETAIL

NOT TO SCALE

Concrete Washout Specifications

VINYL CON CONCRETE WASHOUT SYSTEM SPECIFICATIONS

Vinyl-Con™ system utilizes a portable, self-contained and watertight container with filter bag system and Aqua-Solution™ to control, capture and contain caustic concrete wastewater and washout material.

Vinyl Con System is compliant with EPA regulations for Concrete Washout.

Site Management
- Complete installation of the system and have washout locations operational prior to concrete delivery.
- Do not wash out concrete trucks or equipment into storm drains, wetlands, streams, rivers, creeks, ditches, or streets.
- Never wash out into a storm sewer drainage system. These systems are typically connected to a natural conveyance system.
- Where necessary, provide stable ingress and egress
- Do not back flush equipment at the project site. Back flushing should be restricted to the plant as it generates large volumes of waste that may exceed the capacity of the washout systems. If an emergency arises, back flush should only be performed with the permission of the on-site manager for the project.

Location
- Locate concrete washout systems at least 50 feet from any creeks, wetlands. ditches, karst features. or storm drains/manmade conveyance systems.
- To the extent practical, locate concrete washout systems in relatively flat areas that have established vegetation aid do not receive runoff from adjacent land areas.
- Locate in areas that provide easy access for concrete trucks and other construction equipment.
- Locate away from other construction traffic to reduce the potential for damage to the system.

Vinyl Con Container

1. Locate the washout in an area that is free of rocks and other debris that may cause tears or punctures in the Vinyl Con Container.
2. Spread the Vinyl-Con™ flat on the ground with the opening facing up
3. Layout the framework pieces on the ground as follows:
   6x8 Vinyl-Con™: (4) 4-way corner fittings; (4) 7" upright fittings; (2) couplers; (4) 19" legs;
   (2)47" walls; (4) 35.5" walls
4. Assemble
   - Insert 47" wall into 4' pocket of Vinyl-Con™ (repeat on opposite side)
   - Attach (2) 35.5" walls together with (1) coupler (repeat on opposite side)
   - Insert the wall with coupler into 6' pocket of Vinyl-Con™ (repeat on opposite side)
   - Connect (4) legs into 4-ways
   - Connect (4) 4-ways in each corner to the walls
   - Insert 7" upright into the top of the 4-way on each corner (for use of filter bags)
5. Loops are available on each corner to secure the Vinyl-Con™ to the ground with stakes in high wind areas. Once the concrete is in the Vinyl-Con™ there is no need for stakes.

Install Filter Bag

1. Spread the Vinyl-Con™ Filter Bag flat inside the Vinyl-Con™ container
2. Insert the 7" pvc uprights into the top of the corner fittings on the Vinyl-Con™ container
3. Place the Filter Bag corner loops over the Vinyl-Con™ corner uprights. Be sure to twist the loops several times and then loop over the corner pvc uprights. This helps secure the filter bag is place.
4. Begin pouring concrete washout into the filter bag
5. When the filter bag is full of concrete, lift the bag with the straps allowing the water to permeate through the bag and into the Vinyl-Con™ container.
6. Set the filter bag aside and refill the Vinyl-Con™ container with another filter bag

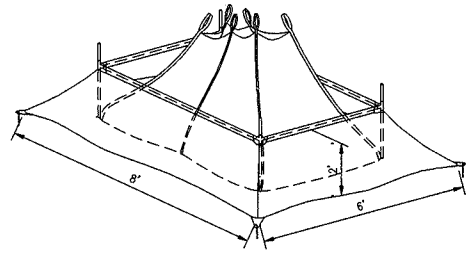
Maintenance
- Place a cover over the washout facility prior to a predicted rainfall event to prevent accumulation of water and possible overflow of the system
- Inspect daily and after each storm event.
- Inspect the integrity of overall structure including, the containment system.
- Inspect the system for leaks, spills, and tracking of soil by equipment
- Once filter bag is full of hardened washout material, remove for recycling.
- Place another filter bag inside the Vinyl-Con watertight container and repeat step #1 over again multiple times.
- Once Vinyl-Con watertight container is full of cementitious wastewater, place lost filter bag inside to allow wastewater to permeate up through the filter bag and broadcast Aqua-Solution into wastewater turning the wastewater into a gelled content in about 5 minutes.
- Once entire filter bag of wastewater is a gelled content, remove for recycling.
- Reuse Vinyl-Con watertight container, begin with step #1 with more filter bags.

Benefits

The Vinyl-Con™ Washout Systems is reusable with the filter bags. You may fill 1-3 filter bags by washing out 75+ concrete trucks (Vinyl Con 68). Once each filter bag is full of hardened concrete you lift the filter bag (rated for 2,500lbs) out of the Vinyl-Con container and set it aside for the concrete recycling company. Then after filling about 3 filter bags the Vinyl-Con is full of wash water. Place the fourth filter bag into the Vinyl-Con and let the water permeate up through the filter bag until the bag has settled on the bottom of the Vinyl-Con container. Sprinkle aqua-solution into the water, the water turn to gel in about 5 minutes. Once the water is in gel form lift the fourth filter bag and set aside for the concrete recyclers. The Vinyl-Con container is empty and ready to use again. (http://www.vinyl-con.com/)

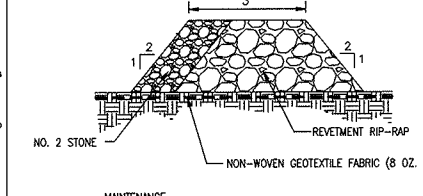
Specifications

DETAIL A:2 –Vinyl Con 68 (6'X8'size) Approximately 25+ concrete trucks per filter bag to washout up to 75-90+ concrete trucks until Vinyl-Con watertight container is full of wastewater. Reuse again.



6'X8'X2' PORTABLE CONCRETE WASHOUT CONTAINER
VINYL-CON™ DETAIL A:2

NOT TO SCALE



MAINTENANCE
1. VISUALLY INSPECT FOR SIGNS OF CLOGGING, SIDE CUTTING OR SCOURING.
2. REPAIR WASHOUTS OR AREAS OF SCOURING.
3. REMOVE SEDIMENT OR DEBRIS ACCUMULATION THAT MAY BE PROHIBITING WATER FLOW.

CHECK DAM

NOT TO SCALE

NATIVE PLANTING AREA

DO NOT MOW

DO NOT SPRAY

BMP SIGNAGE DETAIL

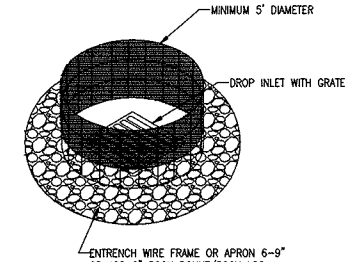
NOT TO SCALE

SILT FENCE SHALL BE OF HEAVY DUTY TYPE. SECURED TO A WELDED WIRE FRAME.
SILT FENCE SHALL BE PLACED IN A CIRCULAR CONFIGURATION AROUND THE INLET TO FORM A MINIMUM 5 FOOT DIAMETER ZONE OF PROTECTION.

INSTALLATION:
THE WIRE FRAME WILL BE SECURED IN THE CIRCULAR CONFIGURATION BY OVERLAPPING THE ENDS TO THE DESIRED SIZE AND FASTENING ONE END OF THE WELDED WIRE FRAME TO THE OVERLAPPED SECTION WITH NYLON SIP TIES OR WIRE HOG RING TYPE FASTENERS.

BASED ON MANUFACTURE RECOMMENDATIONS AND/OR PRODUCT CONSTRUCTION;
1. INLET PROTECTORS WITH AND APRON-
THE APRON OF THE SILT FENCE SHALL BE TRENCHED INTO THE SOIL (6-9") OR A ROCK DONUT PLACED ON THE APRON. (ROCK LOGS MAY BE SUBSTITUTED FOR THE ROCK DONUT)
2. INLET PROTECTORS WITHOUT AN APRON-
THE WIRE FRAME SHALL BE TRENCHED INTO THE SOIL 6-9". IF THE FRAME CANNOT BE TRENCHED INTO THE SOIL, A ROCK DONUT SHALL BE PLACED AROUND THE BOTTOM OF THE DEVICE. (ROCK LOGS MAY BE SUBSTITUTED FOR THE ROCK DONUT) THE DEVICE SHALL BE SECURED BY EITHER ATTACHING THE WIRE FRAME TO POSTS SECURED INTO THE GROUND OR THE FRAME MAY BE WIRED DIRECTLY TO THE INLET GRATE FROM TWO OPPOSITE DIRECTIONS.

MAINTENANCE
1. INSPECT THE DROP INLET PROTECTION WEEKLY AND AFTER EACH STORM EVENT, MAKE NEEDED REPAIRS IMMEDIATELY.
2. REMOVE SEDIMENT FROM THE POOL AREA TO ENSURE ADEQUATE RUNOFF STORAGE FOR THE NEXT RAIN.
3. WHEN THE SURROUNDING AREA HAS BEEN STABILIZED, REMOVE THE INLET PROTECTION, AND SEDIMENT, GRADE THE DISTURBED AREA TO THE ELEVATION OF THE TOP OF THE INLET AND STABILIZE.



WELDED WIRE MONOFILAMENT YARD INLET PROTECTION

NOT TO SCALE

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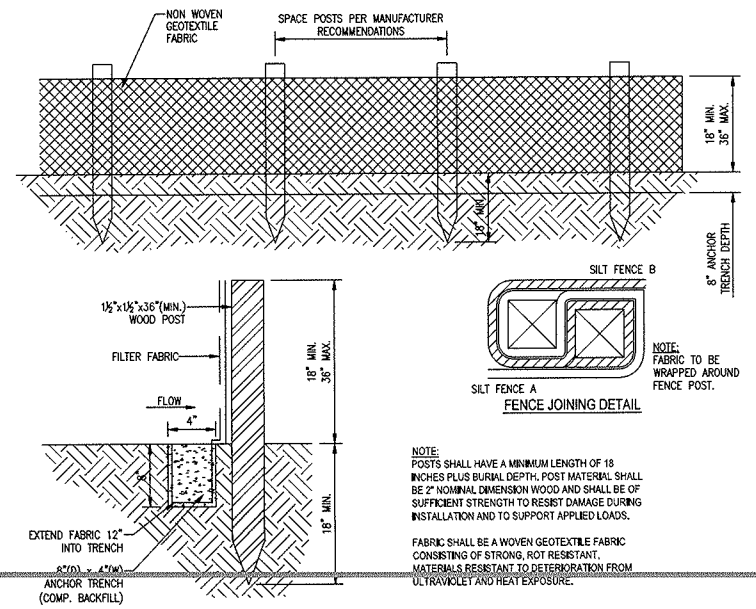


NOTE:
POSTS SHALL HAVE A MINIMUM LENGTH OF 18 INCHES PLUS BURIAL DEPTH. POST MATERIAL SHALL BE 2" NOMINAL DIMENSION WOOD AND SHALL BE OF SUFFICIENT STRENGTH TO RESIST DAMAGE DURING INSTALLATION AND TO SUPPORT APPLIED LOADS.

FABRIC SHALL BE A WOVEN GEOTEXTILE FABRIC CONSISTING OF STRONG, ROT RESISTANT, MATERIALS RESISTANT TO DETERIORATION FROM ULTRAVIOLET AND HEAT EXPOSURE.

SILT FENCE CONSTRUCTION
NOT TO SCALE

NOTE:
FABRIC TO BE WRAPPED AROUND FENCE POST.

FENCE JOINING DETAIL

SILT FENCE

LOCATION

- Installed parallel to the slope contour.
- Minimum of 10 feet beyond the toe of slope to provide a broad, shallow sediment pool.
- Accessible for maintenance (removal of sediment and silt fence repair).

INSTALLATION

1. Lay out the location of the fence so that it is parallel to the contour of the slope and at least 10 feet beyond the toe of slope to provide a sediment storage area. Turn the ends of the fence up slope such that the point of contact between the ground and the bottom of the fence end terminates at a higher elevation than the top of the fence at its lowest point.
2. Excavate an eight-inch deep by four-inch wide trench along the entire length of the fence line. Installation by plowing is also acceptable.
3. Install the silt fence with the filter fabric located on the up-slope side of the excavated trench and the support posts on the down-slope side of the trench.
4. Drive the support posts at least 18 inches into the ground, tightly stretching the fabric between the posts as each is driven into the soil. A minimum of 12 inches of the filter fabric should extend into the trench. (If it is necessary to join the ends of two fences, use the wrap joint method shown)
5. Lay the lower four inches of filter fabric on the bottom of the trench and extend it toward the up-slope side of the trench.
6. Backfill the trench with soil material and compact it in place.

MAINTENANCE

- Inspect within 24 hours of a rain event and at least once every seven calendar days.
- If fence fabric tears, starts to decompose, or in any way becomes ineffective, replace the affected portion immediately. Note: All repairs should meet specifications as outlined within this measure.
- Remove deposited sediment when it is causing the filter fabric to bulge or when it reaches one-half the height of the fence at its lowest point. When contributing drainage area has been stabilized, remove the fence and sediment deposits, grade the site to blend with the surrounding area, and stabilize.

SEEDBED PREPARATION

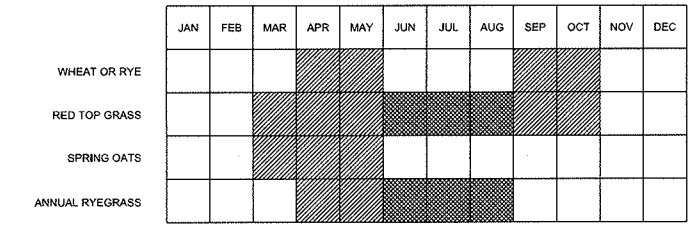
APPLY LIME TO RAISE THE pH TO THE LEVEL NEEDED FOR SPECIES BEING SEEDED. APPLY 23 POUNDS OF 12-12-12 ANALYSIS FERTILIZER (OR EQUIVALENT) PER 1000 SQ. FT. (APPROXIMATELY 1000 POUNDS PER ACRE) OR FERTILIZE ACCORDING TO TEST. APPLICATION OF 150 LBS. OF AMMONIUM NITRATE ON AREAS LOW IN ORGANIC MATTER AND FERTILITY WILL GREATLY ENHANCE VEGETATIVE GROWTH.

WORK THE FERTILIZER AND LIME INTO THE SOIL TO A DEPTH OF 2-3 INCHES WITH A HARROW, DISK OR RAKE OPERATED ACROSS THE SLOPE AS MUCH AS POSSIBLE.

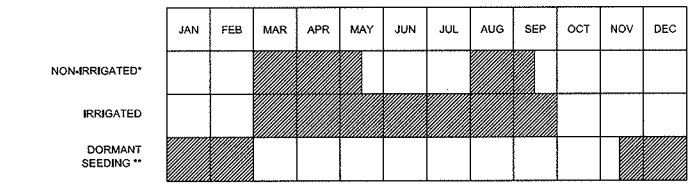
SEEDING

SELECT A SEED MIXTURE BASED ON PROJECTED USE OF THE AREA (SEE PERMANENT SEED MIXTURE CHART). WHILE CONSIDERING BEST SEEDING DATES. IF PERMANENT SEEDING IS NOT PERMITTED USE TEMPORARY SEEDING UNTIL PERMANENT SEEDING CAN BE APPLIED. IF TOLERANCES ARE A PROBLEM, SUCH AS SALT TOLERANCE OF SEEDINGS ADJACENT TO STREETS AND HIGHWAYS, SEE SEED TOLERANCE CHART.

TEMPORARY SEEDING DATES



PERMANENT SEEDING DATES



IRRIGATION NEEDED DURING THIS PERIOD. TO CONTROL EROSION AT TIMES OTHER THAN IN THE SHADED AREAS. USE MULCH.

SOIL CONDITION			SHADE TOLERANCE	CLOSE MOWING TO 2-3 1/2 INCHES	TRAMPING TOLERANCE	FERTILITY NEEDS	WINTER HARDINESS	FLOODING TOLERANCE (DAYS)	MATURE HEIGHT (INCHES)	EMERGENCE TIME (DAYS)	SOIL TOLERANCE		
WET	NORM	DRY									GEN.	SOIL	SPRAY
CREEPING RED FESCUE FESTUCA RUBRA	2	1	2	1	1	1	MED.	1	20-25	12-18	7-21			S
KENTUCKY BLUEGRASS POA PROTINSIS	2	1	2	1	1	1	MED.	1	20-35	12-18	10-20			MT
TALL FESCUE FESTUCA L. ARUNDINACEA	2	1	1	1	1	1	LOW	1	24-35	24-36	5-14		T	
PERENNIAL RYEGRASS LOLLUM PERENNE	2	1	2	-	1	2	MED, HIGH	2	15-20	12-18	5-10		MT	
CROWNVETCH CORONICDA VARCA	-	1	1	2	-	-	LOW	1	5-10	24	14-21	T		
RED CLOVER TRIFOLIUM PROTENSE	-	1	-	2	-	-	MED.	1	7-10	18	5-10	S	S	

RANKING:
1 GOOD
2 MEDIUM
- NOT TOLERANT

SALT TOLERANCE (TO BOTH SOIL SALTS & SPRAY)
T TOLERANCE
MT MEDIUM TOLERANCE
S SLIGHT TOLERANCE

SEED TOLERANCE

SEEDING TABLES AND INFORMATION

TEMPORARY SEEDINGS		
TYPE OF SEED	LBS/ACRE	REMARKS
WHEAT OR RYE	150 LB.	COVER SEED 1" TO 1 1/2" DEEP
RED TOP GRASS - Agrostis alba	1-5 LB.	COVER SEED 1/4" DEEP
SPRING OATS - Avena sativa	100 LB.	COVER SEED 1" DEEP
ANNUAL RYEGRASS - Lolium multiflorum	40 LB.	COVER SEED 1/4" DEEP

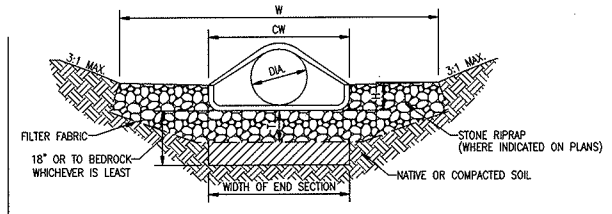
* TEMPORARY SEEDINGS TO BE ADDED TO ALL SEEDING MIXES

PERMANENT TURF GRASS SEED MIX		
TYPE OF SEED - GRASSES		
LATIN NAME	COMMON NAME	lbs/ACRE
Festuca arundinacea	Turf Type Tall Fescue	50
Lolium perenne	Perennial Ryegrass	43
Poa pratensis	Kentucky Bluegrass	42
GRASSES lbs PER ACRE		105
TYPE OF SEED - COVER CROP		
LATIN NAME	COMMON NAME	lbs/ACRE
Avena sativa	Seed Oats	32
Lolium multiflorum	Annual Rye	6
COVER CROP lbs PER ACRE		38

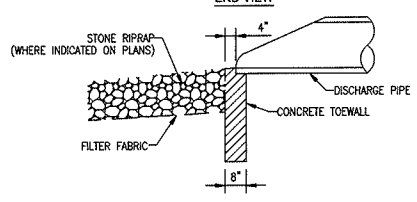
SPECIES	SEEDING RATE LBS/ACRE	SEEDING RATE LBS/1000 SQ. FT.	SUITABLE pH	SITE SUITABILITY * DROUGHTY	WELL DRAINED	WET
LEVEL AND SLOPING, OPEN AREAS *						
1. TALL FESCUE	35	.8	5.5-8.3	2	1	2
2. TALL FESCUE	25	.6	5.5-8.3		1	
RED CLOVER	5	.12				
3. KENTUCKY BLUEGRASS	15	.4	5.8-7.5	2	1	
CREEPING RED FESCUE	15	.4				
STEEP BANKS AND CUTS *						
4. TALL FESCUE	15	.4	5.8-7.5	2	1	2
KENTUCKY BLUEGRASS	25	.6				
5. TALL FESCUE	35	.8	5.5-8.3	2	1	
EMERALD CROWNVETCH**	10	.25				
LAWNS AND HIGH MAINTENANCE AREAS *						
6. KENTUCKY BLUEGRASS	40	.9	5.8-7.5	2	1	
CREEPING RED FESCUE	40	.9				
7. PERENNIAL RYEGRASS (TURF TYPE)	170	4.0	5.0-7.5		1	
8. TALL FESCUE	170	4.0	5.5-8.3	2	1	2

* 1 - PREFERRED 2 - WILL TOLERATE ** INOCULATE WITH SPECIFIC INOCULANT.

SEED TOLERANCE CHART



END VIEW



SIDE VIEW

SLOPE PROTECTION TABLE		
OUTLET DIAMETER (INCHES)	MINIMUM DEPTH X WIDTH X LENGTH (FEET)	RIPRAP LINING (CUBIC YARDS)
12	1 X 6 X 6	2
15	1 X 6 X 6	2
18	1.5 X 4 X 12	3
24	1.5 X 6 X 14	5
30	1.5 X 7 X 16	6
36	1.5 X 9 X 18	9
42	2 X 10 X 20	15
48	2 X 12 X 20	18
54	2 X 13.5 X 22	22
60	2 X 15 X 25	28
66	2 X 18 X 25	33
72	2 X 20 X 30	44
84	2.5 X 25 X 35	81
96	2.5 X 30 X 40	111
108	3 X 32 X 40	142

RIPRAP DETAIL AT END SECTION
NOT TO SCALE

FLEXSTORM INLET FILETERS
The Most Advanced Name in Water Management Solutions

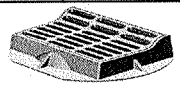
2014 California - ADS FLEXSTORM X-REF

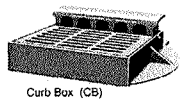
California

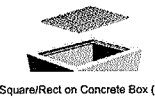
Product selection for FLEXSTORM CATCH-IT Filters (Temporary Inlet Protection)

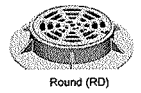
Standard	Inlet Type	Grate Size	Opening Size	Bag Cap. (ft³)	Flow Ratings (CFS) FX	Flow Ratings (CFS) Bypass	ADS P/N
12" x 12" precast catch basin	Concrete Box (HD)	15 x 15	12 x 12	0.9	1.0	2.6	62SQ12FX
18" x 18" precast catch basin	Concrete Box (HD)	21 x 18	18 x 18	2.1	1.5	3.9	62SQ18FX
24" x 24" precast catch basin	Concrete Box (HD)	27 x 24	24 x 24	3.4	1.9	5.0	62SQ24FX
Caltrans Type 18-9 / City of Sacramento type B	Concrete Box (HD)	40x17.5	36x17	2.6	2.8	5.9	62SQ3617FX
36" x 24" precast catch basin	Concrete Box (HD)	40 x 24	36 x 24	5.6	2.5	6.5	62SQ3624FX
36" X 36" precast catch basin	Concrete Box (HD)	40 x 36	36 x 36	7.6	4.4	10.0	62SQ36FX
48" X 48" precast catch basin	Concrete Box (HD)	52 x 48	48 x 48	13.8	5.4	12.0	62SQ48FX

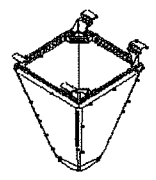

Square/Rectangular (SQ)


Rolled Curb (RC)


Curb Box (CB)

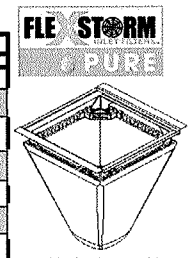

Square/Rect on Concrete Box (HD)

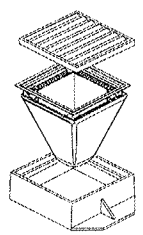

Round (RD)



Product selection for FLEXSTORM PURE Filters (Permanent Inlet Protection)

Standard	Inlet Type	Kristar Equivalent	Grate Size	Clear Opening Size	Bag Cap. (ft³)	Flow Ratings (CFS) FX/FX+	Flow Ratings (CFS) PC/PC+	Flow Ratings (CFS) Bypass	FX	FX+ (Kristar enhanced)	PC	PC+
36" Open Throat Inlet	Open Throat (WM)	FGP-36CI	N/A	36	2.5	1.9	1.4	N/A	62HDWM36FX	**62HDWM36FXP**	62HDWM36PC	62HDWM36PCP
42" Open Throat Inlet	Open Throat (WM)	FGP-42CI	N/A	42	3.0	2.5	1.7	N/A	62HDWM41FX	**62HDWM41FXP**	62HDWM41PC	62HDWM41PCP
48" Open Throat Inlet	Open Throat (WM)	FGP-48CI	N/A	48	3.3	2.5	1.7	N/A	62HDWM48FX	**62HDWM48FXP**	62HDWM48PC	62HDWM48PCP
60" Open Throat Inlet (2 piece)	Open Throat (WM)	FGP-60CI	N/A	60	4.2	2.5	1.7	N/A	62HDWM60FX	**62HDWM60FXP**	62HDWM60PC	62HDWM60PCP
84" Open Throat Inlet (2 piece)	Open Throat (WM)	FGP-84CI	N/A	84	5.8	2.5	1.7	N/A	62HDWM84FX	**62HDWM84FXP**	62HDWM84PC	62HDWM84PCP
48" Open Throat with Side Wings	Open Throat (WM)	N/A	N/A	48 Winged	5.1	2.7	1.7	N/A	62HDWM4818FX	**62HDWM4818FXP**	62HDWM4818PC	62HDWM4818PCP
12" x 12" precast	Concrete Box (HD)	FGP-12F	15 x 15	12 x 12	0.0	1.0	0.7	2.4	62HD12FX	**62HD12FXP**	62HD12PC	62HD12PCP
18" x 18" precast	Concrete Box (HD)	FGP-18F	21 x 18	18 x 18	0.0	1.5	1.0	3.7	62HD18FX	**62HD18FXP**	62HD18PC	62HD18PCP
21" Round Opening	Round (RD)	FGP-RF20F	23	21	1.5	1.3	1.1	4.5	62HDR23FX	**62HDR23FXP**	62HDR23PC	62HDR23PCP
24" Round Opening	Round (RD)	FGP-RF24F	26	24	1.9	1.5	1.3	4.9	62HDR21FX	**62HDR21FXP**	62HDR21PC	62HDR21PCP
24" x 24"	Concrete Box (HD)	FGP-24F	27 x 24	24 x 24	3.2	1.9	0.8	6.1	62HD24FX	**62HD24FXP**	62HD24PC	62HD24PCP
24" x 24" (shallow)	Concrete Box (HD)	FGP-24F8	27 x 24	24 x 24	3.2	1.9	0.8	6.1	62HD24SFX	**62HD24SFXP**	62HD24SPC	62HD24SPCP
36" x 18" precast	Concrete Box (HD)	FGP-3618F	40 x 18	36 x 18	3.8	2.2	1.5	5.6	62HD3618FX	**62HD3618FXP**	62HD3618PC	62HD3618PC
36" x 18" precast	Combination	FGP-1836FGO	40 x 18	36 x 18	3.5	2.1	1.5	6.9	62HDFCB3618FX	**62HDFCB3618FXP**	62HDFCB3618PC	62HDFCB3618PCP
36" x 24" precast	Concrete Box (HD)	FGP-2436FGO	40 x 24	36 x 24	3.9	2.5	1.7	6.5	62HD3624FX	**62HD3624FX**	62HD3624PC	62HD3624PCP
36" X 24" Combination Inlet	Concrete Box (HD)	FGP-2234FGO	40 x 24	36 x 32	4.3	2.3	2.0	5.8	62HDFCB3624FX	**62HDFCB3624FXP**	62HDFCB3624PC	62HDFCB3624PCP
36" X 36" precast	Concrete Box (HD)	FGP-36F	40 x 36	36 x 36	7.2	4.4	3.2	9.6	62HD36FX	**62HD36FXP**	62HD36PC	62HD36PCP
48" X 48" precast**	Concrete Box (HD)	FGP-48F	48 x 48	48 x 48	13.0	5.4	4.2	11.4	62HD48FX	**62HD48FXP**	62HD48PC	62HD48PCP


62MHDFX (Multiple bag styles available)



Flexstorm Accessories		
62CTSB	Included with every FX+ and PC+ bag, this pouch skims hydrocarbons from the storm water.	$ 54.60
62UMT	Flexstorm's Patented 2 man Flexstorm Maintenance and Grate removal tool. Remove 400 lb grates and service full Flexstorm filters without the use of a machine.	$ 95.00

**You cannot order a Flexstorm Inlet filter without a Casting #, item code, or grate and clear opening measurements
***For submittal drawings, dimensional forms, videos, Operation & Maintenance procedures, and promotional material visit www.Inletfilters.com
****Locate your ADS Sales rep Click here

FLEXSTORM INLET FILETERS DETAIL
NOT TO SCALE

REVISIONS		
NO.	DATE	DESCRIPTION
7	02-23-24	REVISED PER CITY COMMENTS
8	03-04-24	REVISED PER CITIZENS WATER COMMENTS

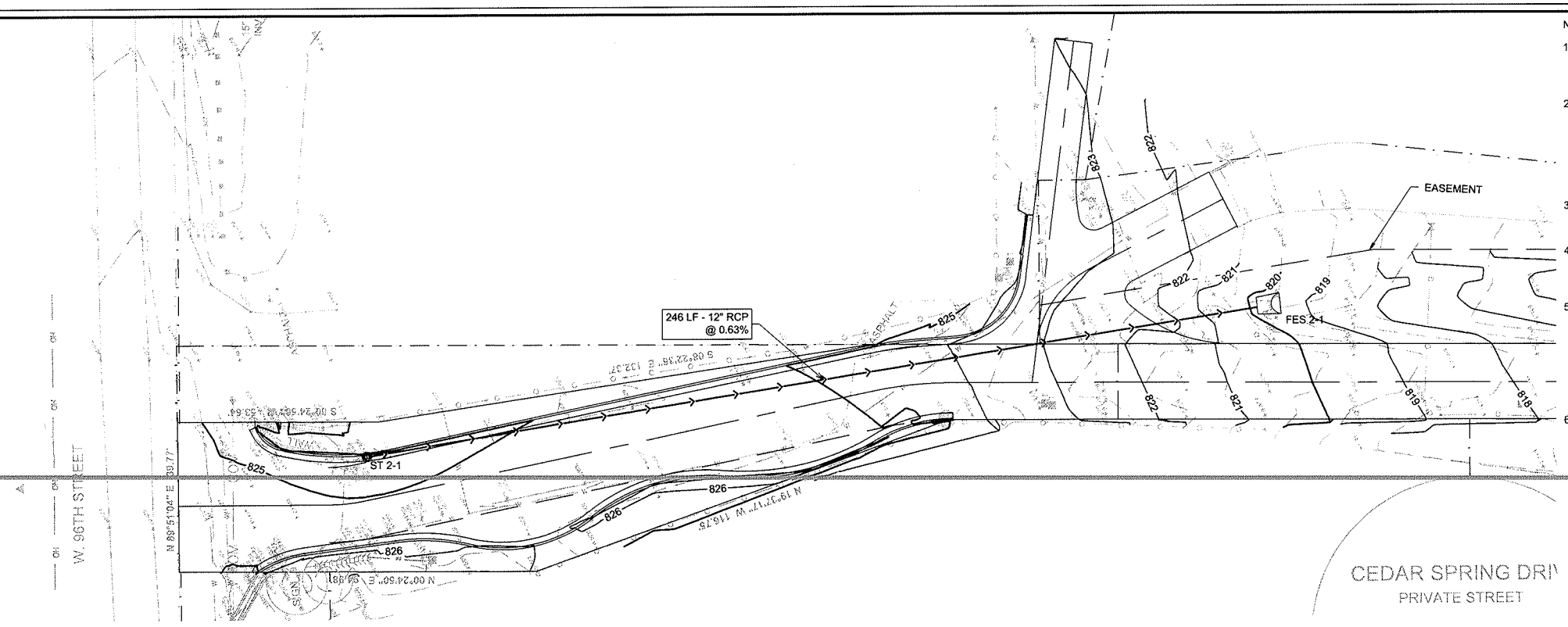
ORIGINAL ISSUE DATE: 07-07-2023	
NO.	DATE / DESCRIPTION
1	09-15-23 REVISED PER CITY AND
2	10-18-23 REVISED PER CITIZENS
3	11-15-23 REVISED PER CITY AND
4	11-27-23 REVISED PER CITIZENS
5	01-08-24 REVISED PER CITY COMMENTS
6	02-09-24 REVISED PER CITY COMMENTS

PROJECT NO.: 220851.S04
PROJECT MANAGER: JOR
DESIGNED BY: MRV
DRAWN BY: MRV

EROSION CONTROL DETAILS
THE RIDGE ON WILLIAMS CREEK
INDIANAPOLIS, INDIANA

619 N Pennsylvania Street
Indianapolis, IN 46204
317.423.0690
www.v3co.com

DRAWING NO.
C4.11



NOTES:

1. CONTRACTOR TO FIELD VERIFY LOCATION, INVERT, AND SIZE OF ALL EXISTING UTILITIES PRIOR TO ORDERING MATERIALS OR BEGINNING UTILITY WORK. CONTRACTOR TO NOTIFY ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
2. UNLESS INDICATED OTHERWISE, FRAME AND OPEN LID STORM STRUCTURES IN PAVEMENT ALONG CURBS SHALL BE NEENAH R-3286-8V OR APPROVED EQUAL. FRAME AND CLOSED LID STORM STRUCTURES IN PAVEMENT SHALL BE NEENAH R-1712 OR APPROVED EQUAL. FRAME AND OPEN LID STORM STRUCTURES IN OPEN SPACE SHALL BE R-3472 WITH TYPE C GRATE OR APPROVED EQUAL. ALL FRAME AND GRATES SHALL CONFORM TO LOCAL MUNICIPALITY REQUIREMENTS.
3. STORM SEWER MANHOLE COVERS SHALL HAVE THE WORDS "STORM SEWER" CAST IN RECESSED LETTERS TWO (2) INCHES IN HEIGHT. SEE DETAIL ON C6.1.
4. INLET CASTINGS SHALL HAVE THE WORDS "NO DUMPING, DRAINS TO STREAM" CAST IN RAISED OR RECESSED LETTERS AT A MINIMUM OF 1" IN HEIGHT. A SYMBOL OF A FISH SHALL ALSO BE CAST WITH THE LETTERS.
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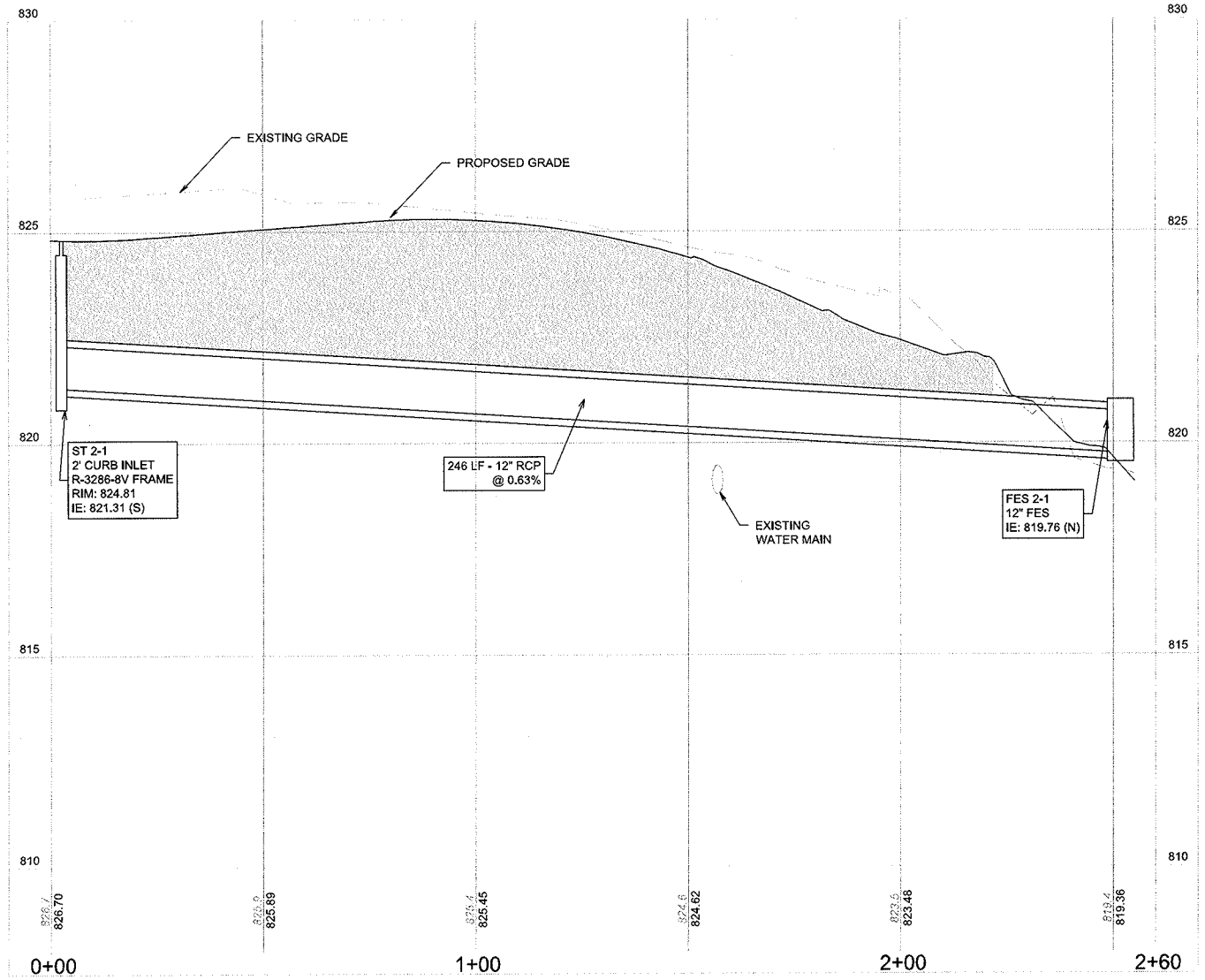

SCALE:
1"=20' (HORIZ)
1"=2' (VERT)

GRAPHIC SCALE
20 10 0 20
1" = 20'

LEGEND
GRANULAR BACKFILL

A202400023641
03/28/2024 10:58 AM
FAITH KIMBROUGH
MARION COUNTY IN RECORDER
FEE: $ 140.00
PAGES: 60
By: JN

JAMES O. RINEHART IV
REGISTERED
No. 10200495
STATE OF INDIANA
PROFESSIONAL ENGINEER

Indiana 811
Know what's below. Call before you dig.

REVISIONS

NO	DATE	DESCRIPTION
7	02-23-24	REVISED PER CITY COMMENTS
8	03 04 24	REVISED PER CITIZENS WATER COMMENTS

ORIGINAL ISSUE DATE: 07-07-2023

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STORM PLAN & PROFILE

THE RIDGE ON WILLIAMS CREEK

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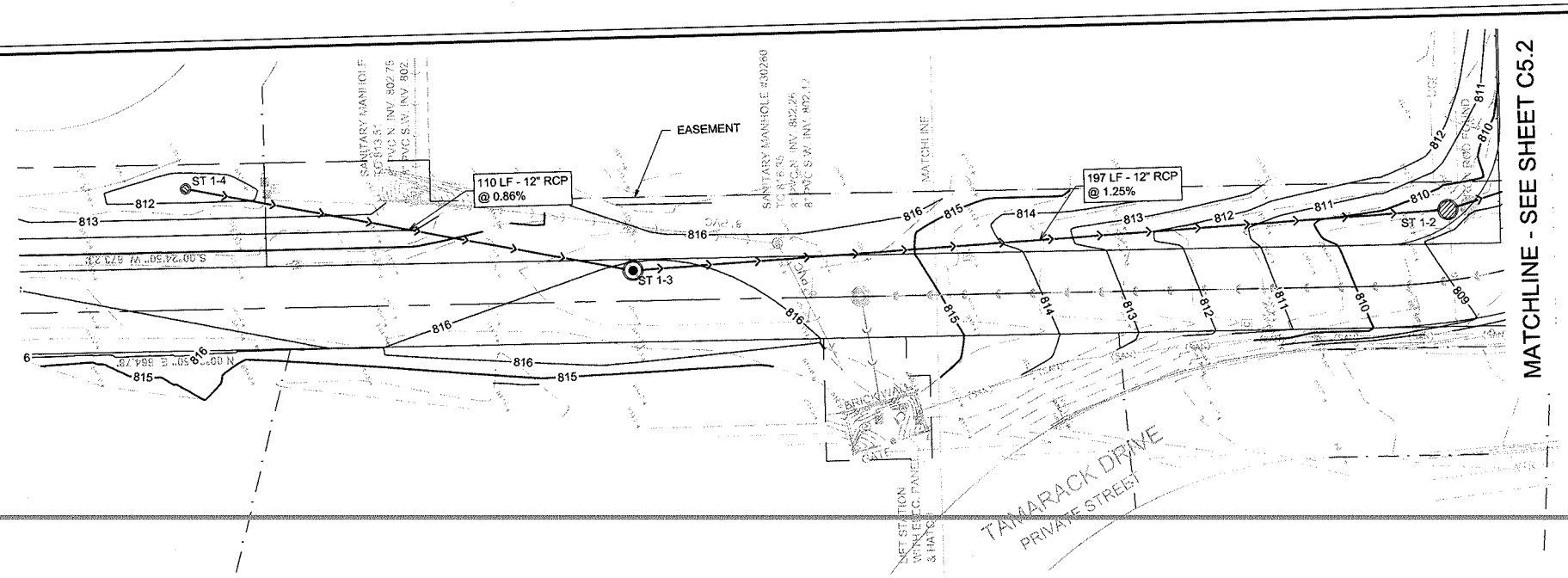
C5.0



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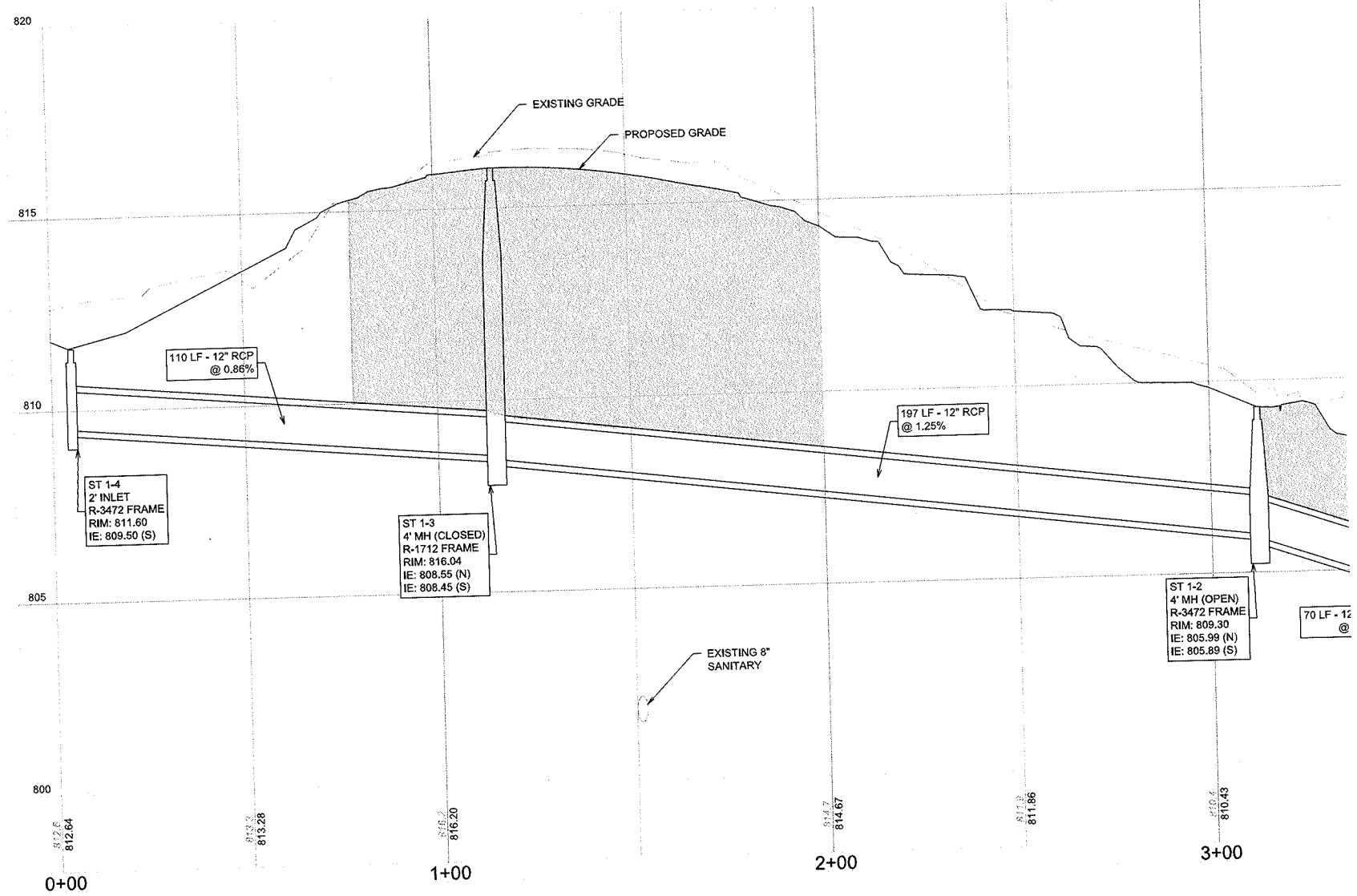

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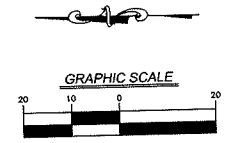

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By: JN

REGISTERED PROFESSIONAL ENGINEER
NO. 10300190
STATE OF INDIANA

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REVISIONS

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ORIGINAL ISSUE DATE: 07-07-2023

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6	02-09-24	REVISED PER CITY COMMENTS

PROJECT NO: 220851.S04
PROJECT MANAGER: JOR
DESIGNED BY: MRV
DRAWN BY: MRV

STORM PLAN & PROFILE

THE RIDGE ON WILLIAMS CREEK
INDIANAPOLIS INDIANA

619 N Pennsylvania Street
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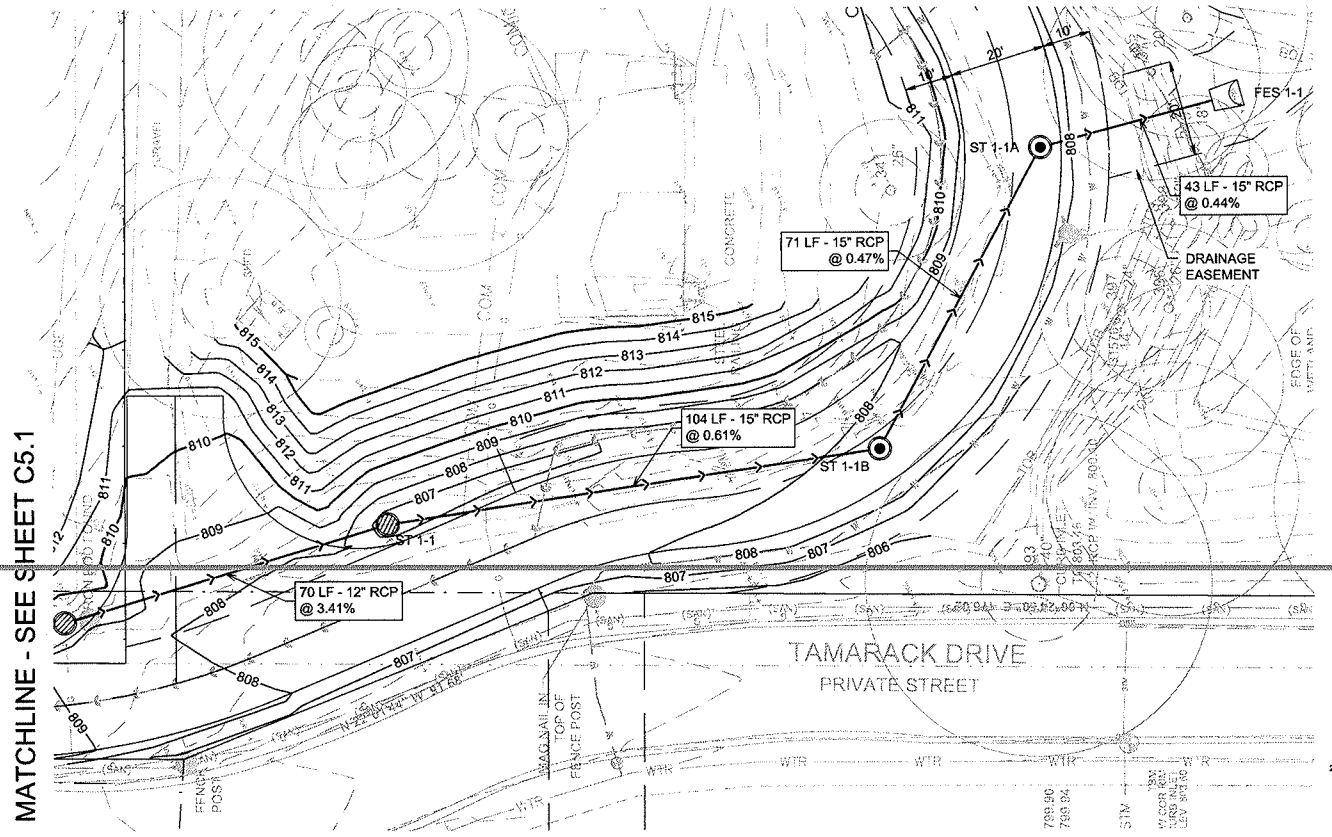

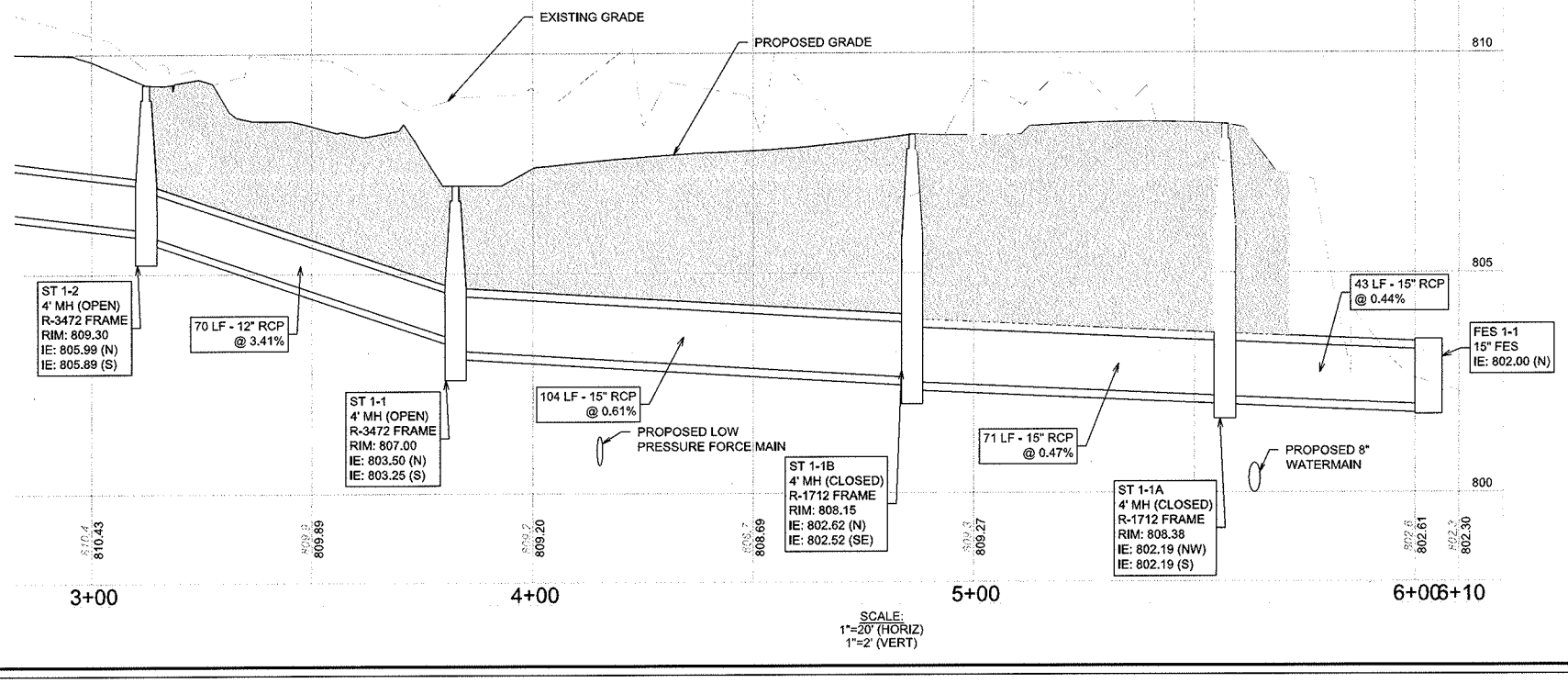

SCALE:
1"=20' (HORIZ)
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LEGEND
GRANULAR BACKFILL

NOTES:

1. CONTRACTOR TO FIELD VERIFY LOCATION, INVERT, AND SIZE OF ALL EXISTING UTILITIES PRIOR TO ORDERING MATERIALS OR BEGINNING UTILITY WORK. CONTRACTOR TO NOTIFY ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
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PROJECT NO: 22065 1 S04
PROJECT MANAGER: JOR
DESIGNED BY: MRV
DRAWN BY: MRV

STORM PLAN & PROFILE

THE RIDGE ON WILLIAMS CREEK

INDIANAPOLIS, INDIANA

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JAMES C. IMBRIANI
REGISTERED
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STATE OF INDIANA
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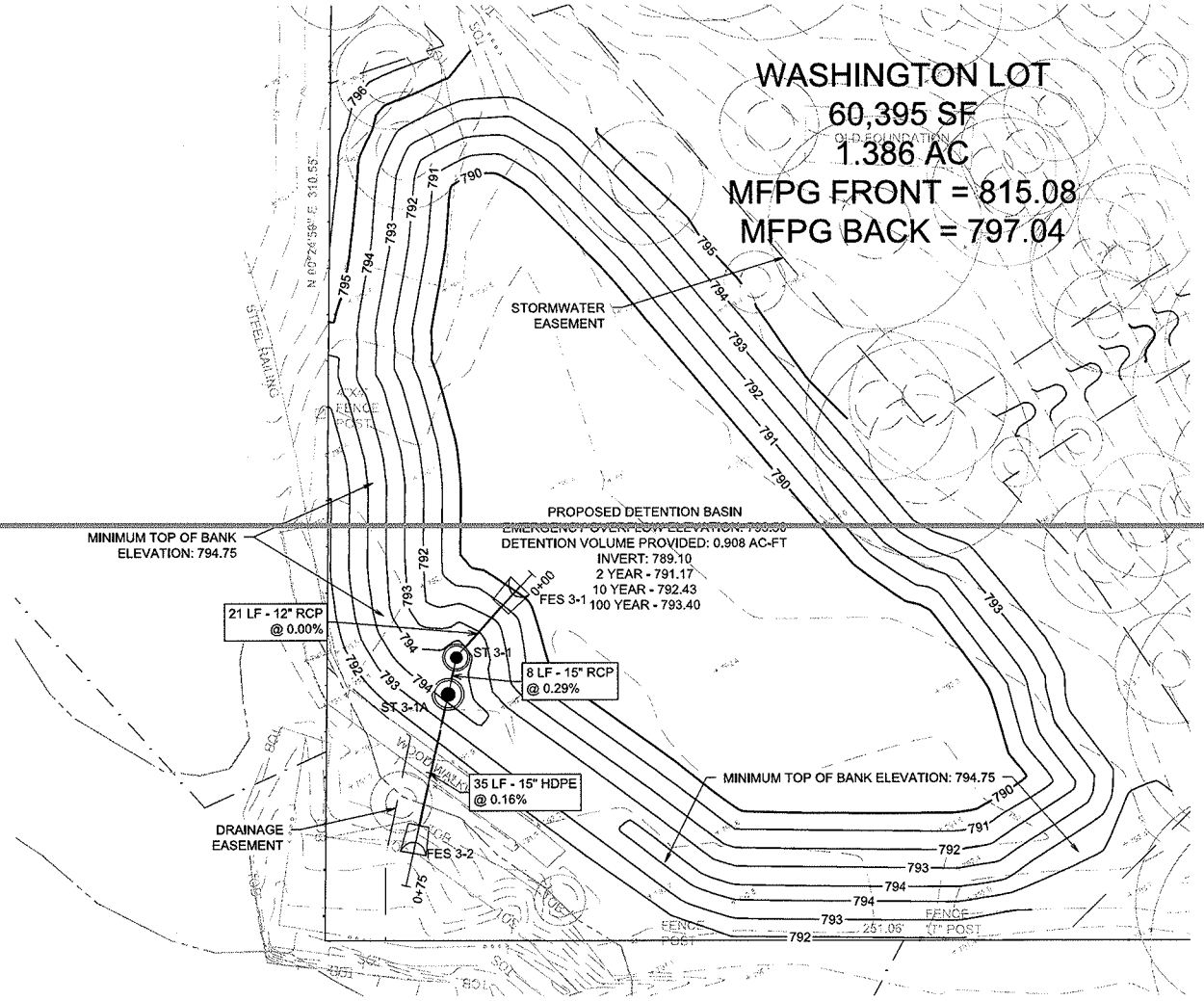

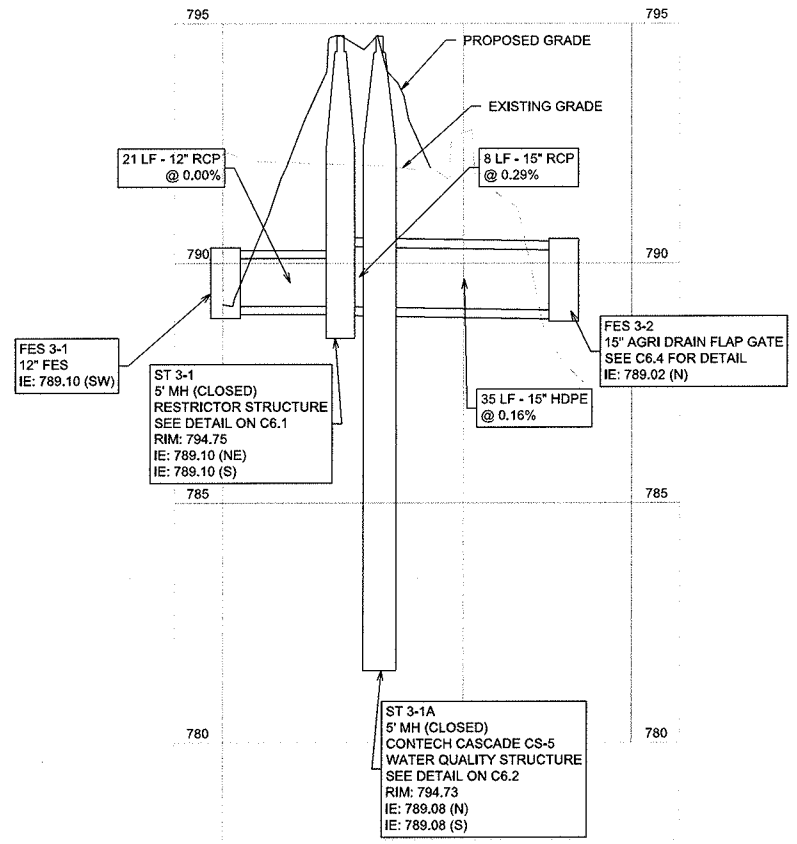

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PROJECT MANAGER: JOR
DESIGNED BY: MRV
DRAWN BY: MRV

STORM PLAN & PROFILE

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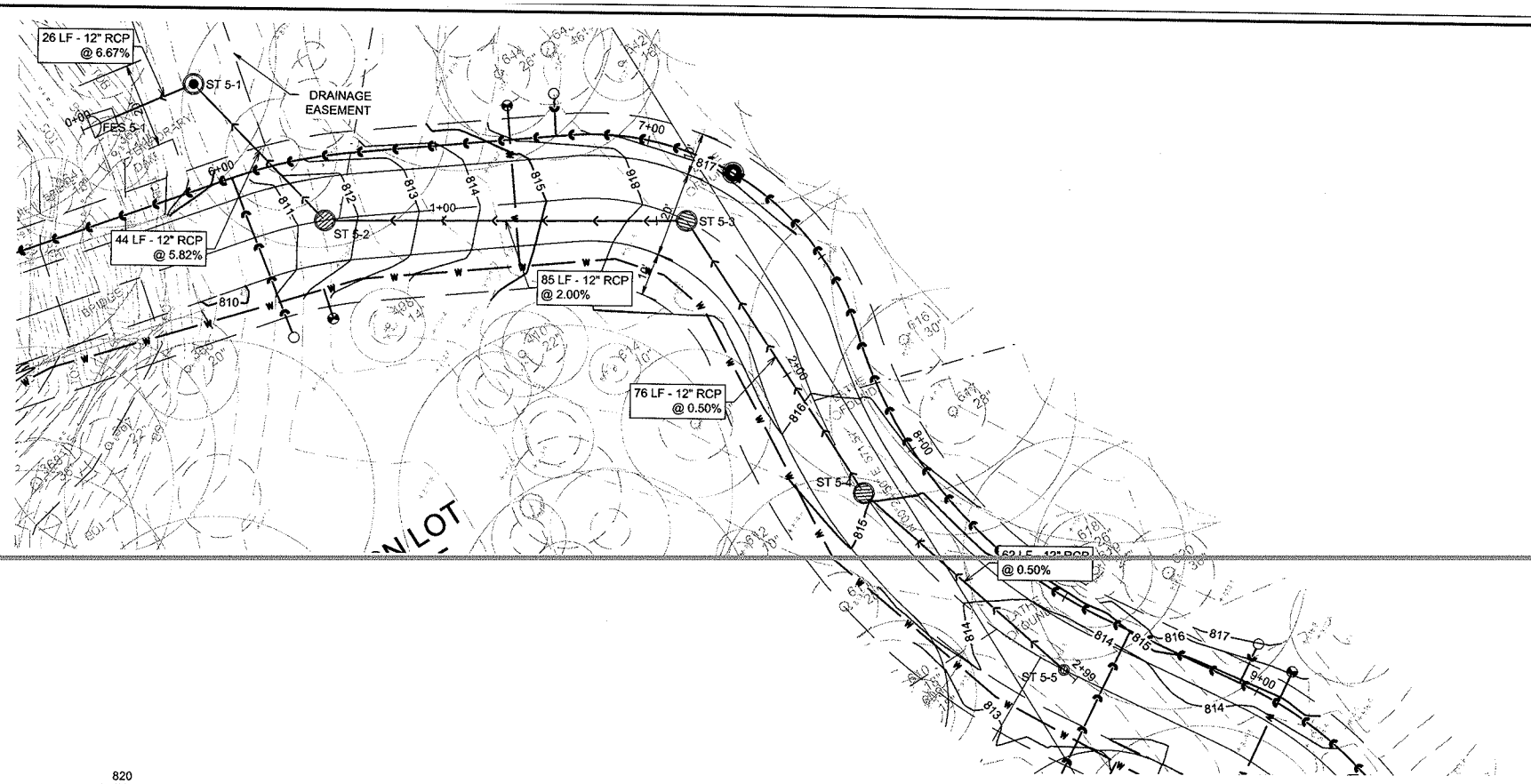

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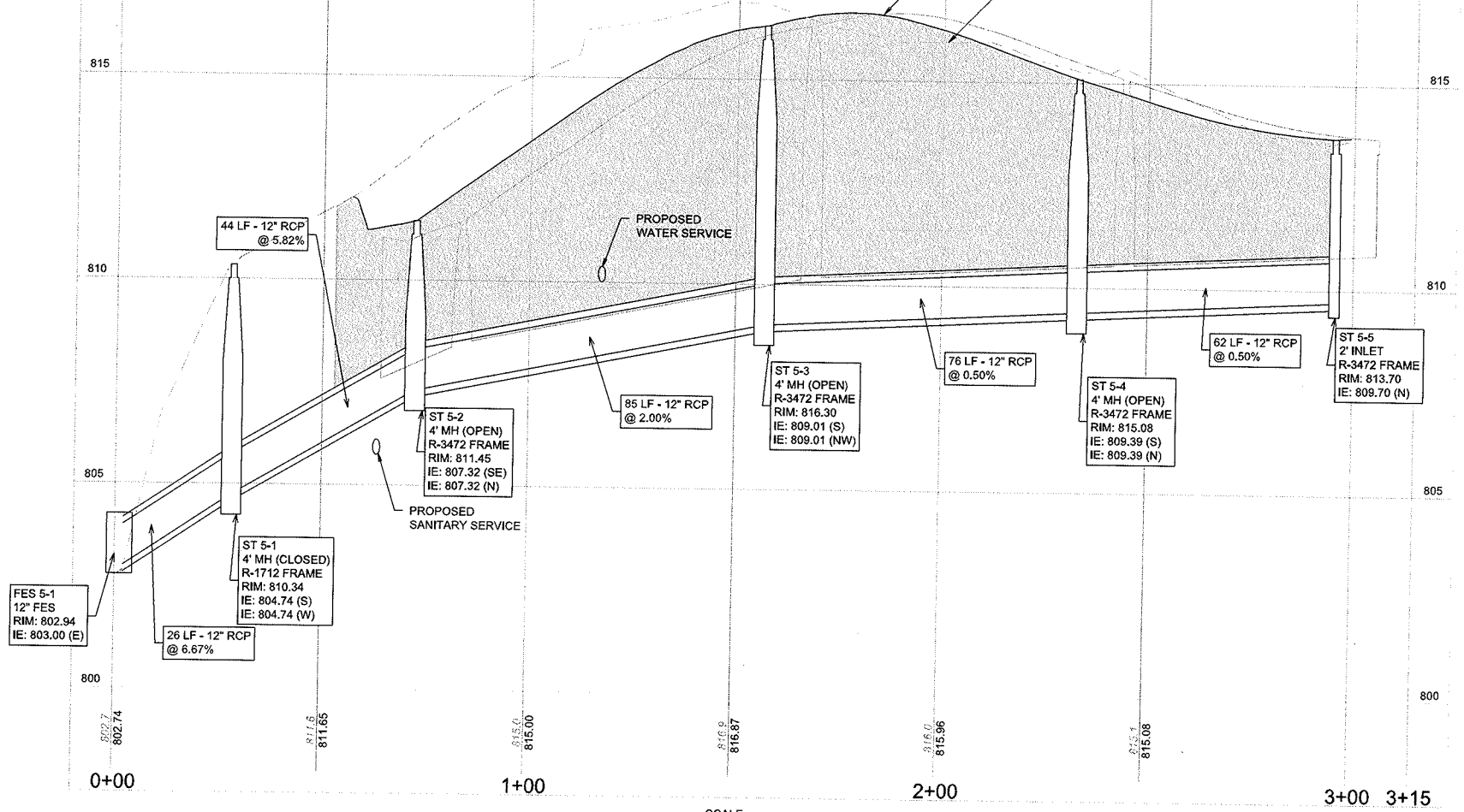

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JAMES O. FINEHAM
REGISTERED
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STORM PLAN & PROFILE

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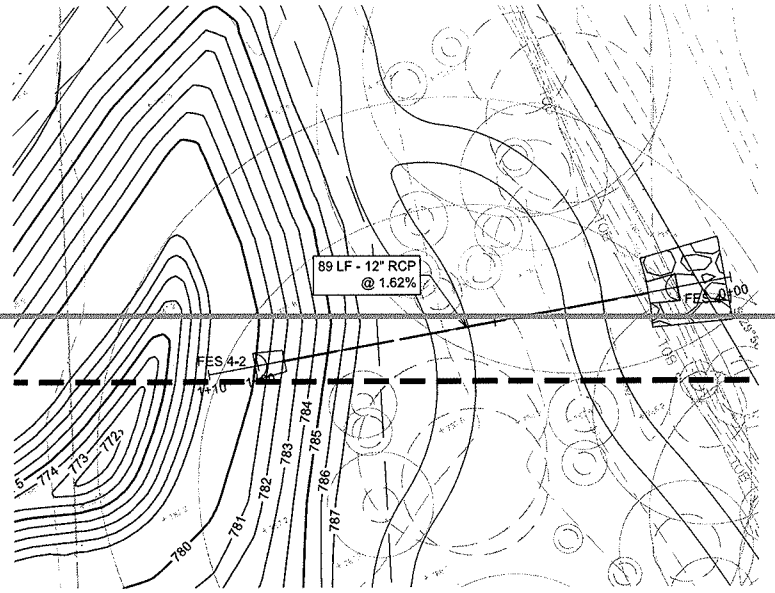
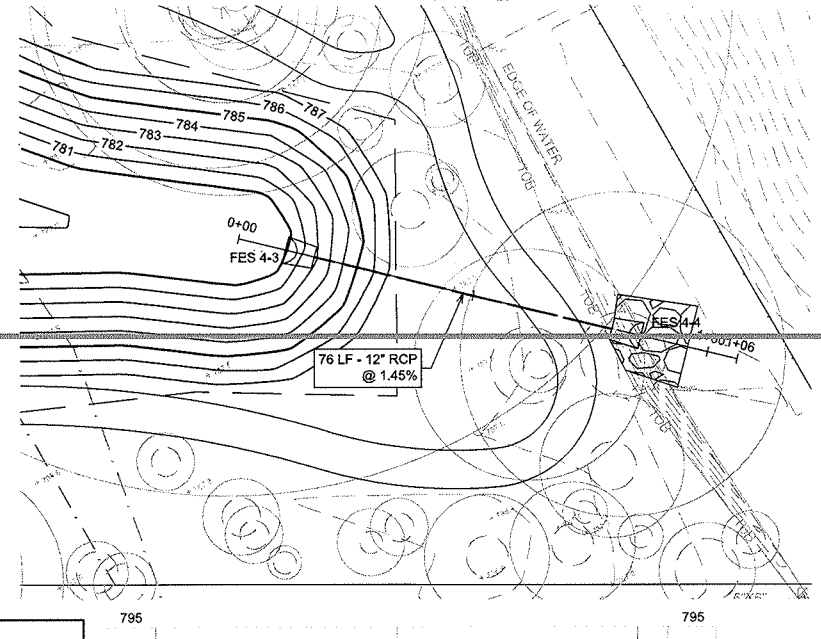


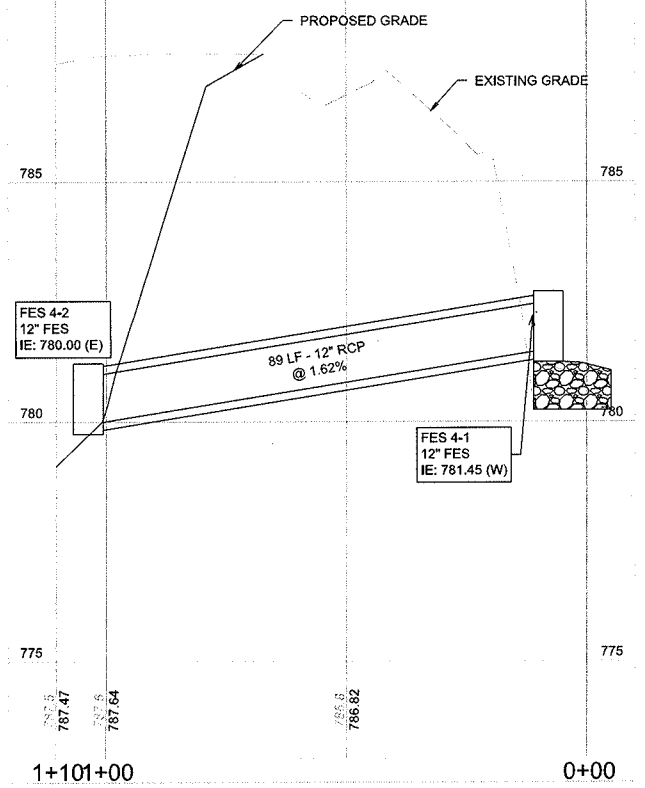
STORM SEWER TABLE

PIPE NAME	PIPE MATERIAL & SIZE	LENGTH	SLOPE	BEARING
FES 3-1 - ST 3-1	12" RCP	21'	0.00%	S41°41'55.13"W
FES 4-1 - FES 4-2	12" RCP	89'	1.62%	S79°36'44.48"W
FES 4-3 - FES 4-4	12" RCP	76'	1.45%	S76°27'56.66"E
ST 1-1 - ST 1-1B	15" RCP	104'	0.61%	S08°27'57.39"E
ST 1-1A - FES 1-1	15" RCP	43'	0.44%	S15°04'21.86"E
ST 1-1B - ST 1-1A	15" RCP	71'	0.47%	S61°54'36.55"E
ST 1-2 - ST 1-1	12" RCP	70'	3.41%	S16°49'08.54"E
ST 1-3 - ST 1-2	12" RCP	197'	1.25%	S02°44'23.67"E
ST 1-4 - ST 1-3	12" RCP	110'	0.86%	S11°53'05.13"W
ST 2-1 - FES 2-1	12" RCP	246'	0.63%	S08°57'31.81"E
ST 3-1 - FES 3-2	15" RCP	8'	0.29%	S12°30'31.33"W
ST 3-1A - FES 3-2	15" HDPE	35'	0.16%	S12°19'13.11"W
ST 5-1 - FES 5-1	12" RCP	26'	6.67%	N80°21'36.05"W
ST 5-2 - ST 5-1	12" RCP	44'	5.82%	N11°38'19.64"W
ST 5-3 - ST 5-2	12" RCP	85'	2.00%	N57°38'00.28"W
ST 5-4 - ST 5-3	12" RCP	76'	0.50%	N00°50'13.17"W
ST 5-5 - ST 5-4	12" RCP	62'	0.50%	N16°20'16.56"W



STORM STRUCTURE TABLE

STRUCTURE	RIM	PIPES IN	INVERT IN	PIPES OUT	INVERT OUT	PIPE LENGTH OUT	DOWNSTREAM STRUCTURE	STRUCTURE TYPE	LOCATION
FES 1-1	RIM: N/A	15" RCP	802.00 (15" N)					15" FES	1703372.40, 185753.22
FES 2-1	RIM: N/A	12" RCP	819.76 (12" N)					12" FES	1704168.80, 185650.64
FES 3-1	RIM: N/A			12" RCP	789.10 (12" SW)	21 LF	ST 3-1	12" FES	1703097.51, 185803.26
FES 3-2	RIM: N/A	15" HDPE	789.02 (15" N)					15" AGRI DRAIN FLAP GATE SEE C6.4 FOR DETAIL	1703039.62, 185780.18
FES 4-1	RIM: N/A			12" RCP	781.45 (12" W)	89 LF	FES 4-2	12" FES	1703324.46, 186533.63
FES 4-2	RIM: N/A	12" RCP	780.00 (12" E)					12" FES	1703308.37, 186445.82
FES 4-3	RIM: N/A			12" RCP	780.00 (12" E)	76 LF	FES 4-4	12" FES	1703089.80, 186581.29
FES 4-4	RIM: N/A	12" RCP	778.90 (12" W)					12" FES	1703072.07, 186654.96
FES 5-1	RIM: 802.94	12" RCP	803.00 (12" E)					12" FES	1703488.84, 185900.00
ST 1-1	RIM: 807.00	12" RCP	803.50 (12" N)	15" RCP	803.25 (15" S)	104 LF	ST 1-1B	4' MH (Open) R-3472 FRAME	1703549.84, 185664.23
ST 1-1A	RIM: 808.38	15" RCP	802.19 (15" NW)	15" RCP	802.19 (15" S)	43 LF	FES 1-1	4' MH (Closed) R-1712 FRAME	1703414.07, 185741.99
ST 1-1B	RIM: 808.15	15" RCP	802.62 (15" N)	15" RCP	802.52 (15" SE)	71 LF	ST 1-1A	4' MH (Closed) R-1712 FRAME	1703447.44, 185679.47
ST 1-2	RIM: 809.30	12" RCP	805.99 (12" N)	12" RCP	805.89 (12" S)	70 LF	ST 1-1	4' MH (Open) R-3472 FRAME	1703616.93, 185643.95
ST 1-3	RIM: 816.04	12" RCP	808.55 (12" N)	12" RCP	808.45 (12" S)	197 LF	ST 1-2	4' MH (Closed) R-1712 FRAME	1703814.07, 185634.52
ST 1-4	RIM: 811.60			12" RCP	809.50 (12" S)	110 LF	ST 1-3	2' Inlet R-3472 FRAME	1703921.63, 185657.15
ST 2-1	RIM: 824.81			12" RCP	821.31 (12" S)	246 LF	FES 2-1	2' Curb Inlet R-3286-8V FRAME	1704411.93, 185612.31
ST 3-1	RIM: 794.75	12" RCP	789.10 (12" NE)	15" RCP	789.10 (15" S)	8 LF	ST 3-1A	5' MH (Closed) RESTRICTOR STRUCTURE SEE DETAIL ON C6.1	1703082.03, 185789.47
ST 3-1A	RIM: 794.59	15" RCP	789.08 (15" N)	15" HDPE	789.08 (15" S)	35 LF	FES 3-2	5' MH (Closed) CONTECH CASCADE CS-5 WATER QUALITY STRUCTURE SEE DETAIL ON C6.2	1703074.06, 185787.70
ST 5-1	RIM: 810.34	12" RCP	804.74 (12" S)	12" RCP	804.74 (12" W)	26 LF	FES 5-1	4' MH (Closed) R-1712 FRAME	1703484.47, 185925.71
ST 5-2	RIM: 811.45	12" RCP	807.32 (12" SE)	12" RCP	807.32 (12" N)	44 LF	ST 5-1	4' MH (Open) R-3472 FRAME	1703441.07, 185934.65
ST 5-3	RIM: 816.30	12" RCP	809.01 (12" S)	12" RCP	809.01 (12" NW)	85 LF	ST 5-2	4' MH (Open) R-3472 FRAME	1703395.81, 186006.06
ST 5-4	RIM: 815.08	12" RCP	809.39 (12" S)	12" RCP	809.39 (12" N)	76 LF	ST 5-3	4' MH (Open) R-3472 FRAME	1703319.83, 186007.17
ST 5-5	RIM: 813.70			12" RCP	809.70 (12" N)	62 LF	ST 5-4	2' Inlet R-3472 FRAME	1703259.96, 186024.73



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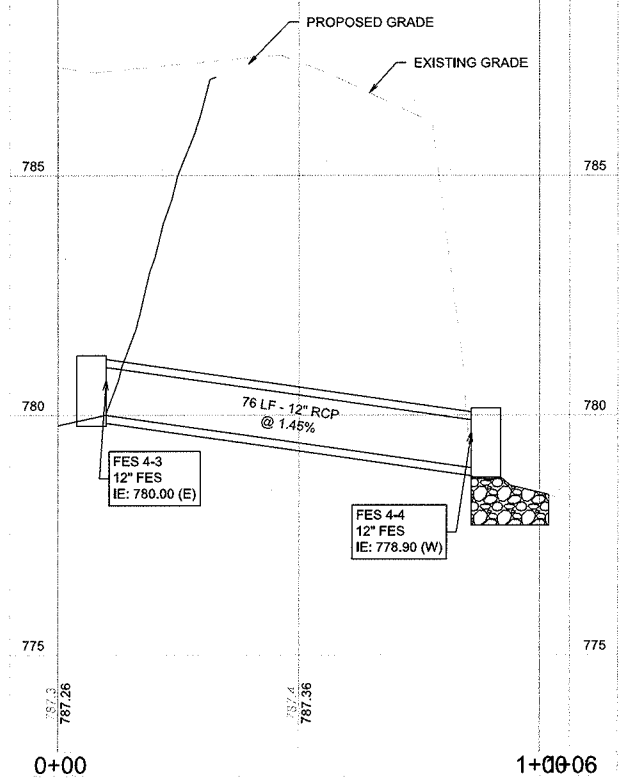

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JAMES D. RINEHART — REGISTERED No 10200495 STATE OF INDIANA PROFESSIONAL ENGINEER

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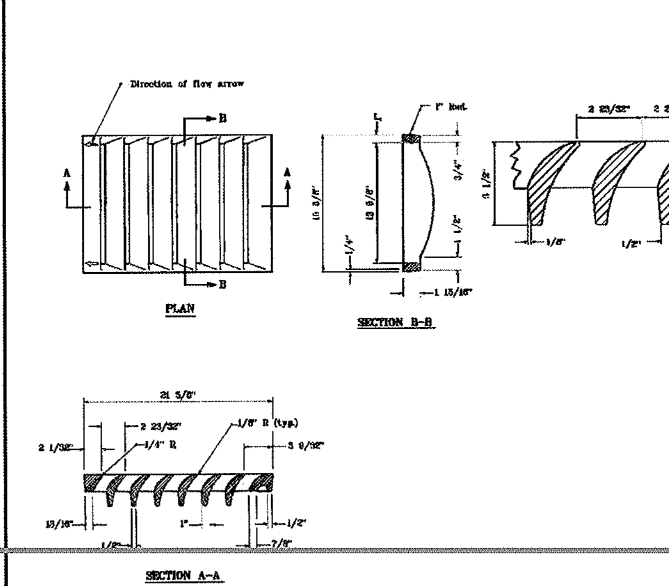

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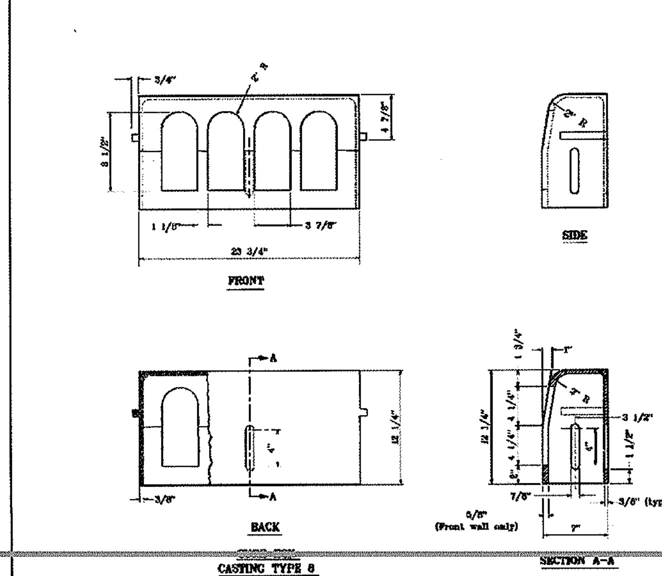

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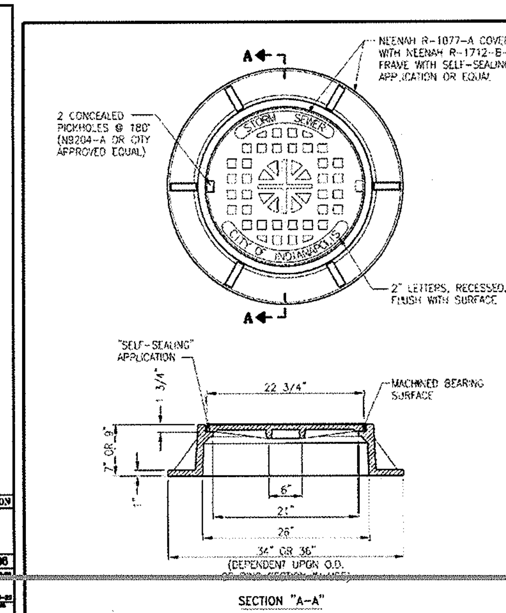
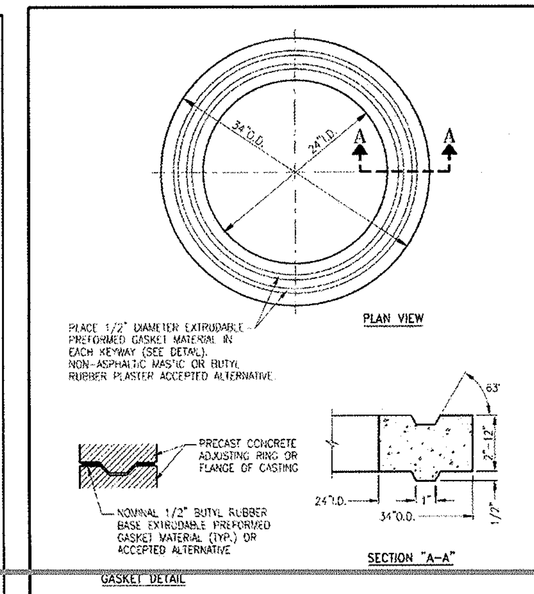
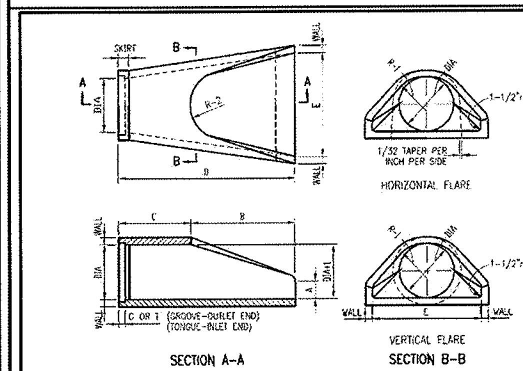


STORM SEWER MANHOLE FRAME & COVER

STANDARD MANHOLE



PRECAST CONCRETE ADJUSTING RING DETAIL



DIA.	WALL	C or T	WT. SEC	A	B	C	D	E	DIA+1	R-1	R-2	SKIRT
12	2	1 1/2	530	4	24	48 7/8	72 7/8	24	13	10 1/16	9	3 1/2
15	2 1/4	2	740	6	27	46	73	30	16	12 1/2	11	3 1/2
18	2 1/2	2 1/2	990	9	27	46	73	36	19	15 1/2	12	4
21	2 3/4	2 1/4	1280	9	35	38	73	42	22	16 1/8	13	4
24	3	2 1/2	1520	9 1/2	43 1/2	30	73 1/2	48	25	16 11/16	14	4 1/2
27	3 1/4	2 1/2	1930	10 1/2	48	25 1/2	73 1/2	54	28	17 3/4	14 1/2	4 1/2
30	3 1/2	3	2190	12	54	19 3/4	73 3/4	60	31	18 5/16	15	5
33	3 3/4	3 3/8	3150	13 1/2	56 1/2	39 1/4	97 3/4	66	34	23 3/4	17 1/2	5 1/2
36	4	3 1/2	4100	15	63	34 3/4	97 3/4	72	37	24 1/16	20	5 1/2
42	4 1/2	3 3/4	5380	21	63	35	98	78	43	27 1/4	22	5 1/2
48	5	4 1/4	6550	24	72	26	98	84	49	28 1/8	22	5 3/4
54	5 1/2	4 3/4	8040	27	65	35	106	90	55	32 7/8	24	6 1/4
60	6	5	8750	30	60	39	99	96	61	36 3/4	24	6 3/4
66	6 1/2	5 1/2	10630	24	78	21	99	102	67	35 11/16	24	7 1/4
72	7	6	12520	34	78	21	99	108	73	38 5/8	24	7 3/4
78	7 1/2	6 1/2	14430	24	78	21	99	114	79	41 15/16	24	8 1/2
84	8	7	16350	24	78	21	99	120	85	44 13/16	24	9

NOTES: 1. MANUFACTURE OF END SECTION IS IN ACCORDANCE WITH APPLICABLE PORTIONS OF A.S.T.M. SPECIFICATION C76.

PRECAST CONCRETE FLARED HEADWALLS

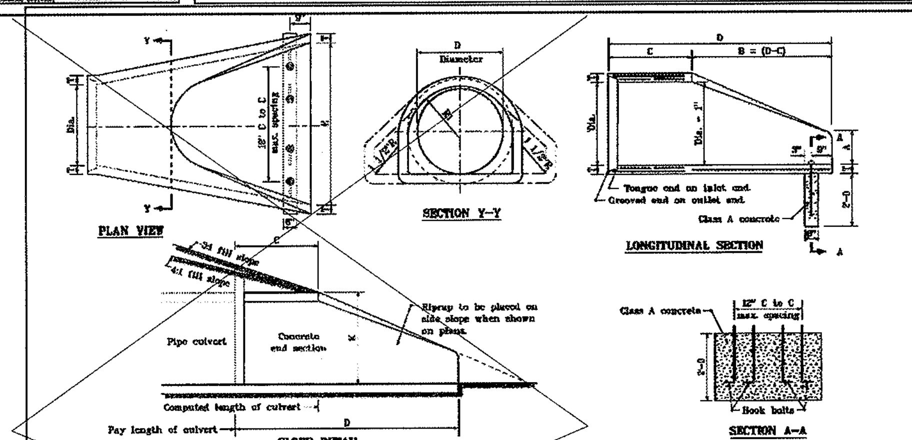
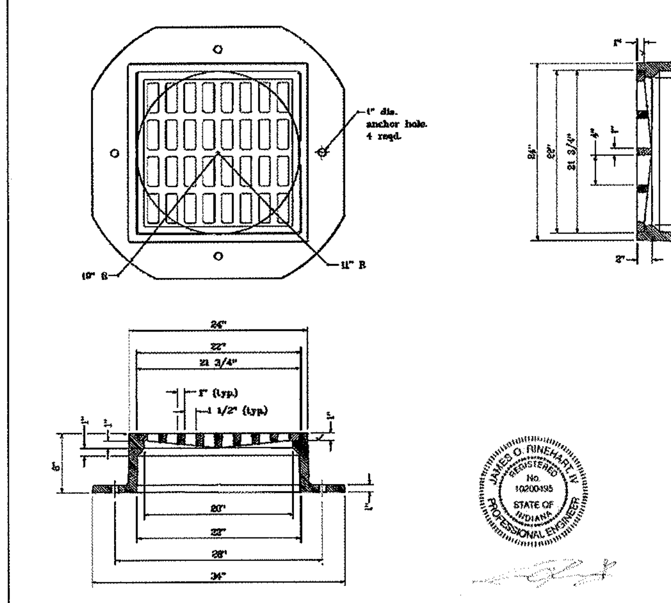


TABLE OF DIMENSIONS

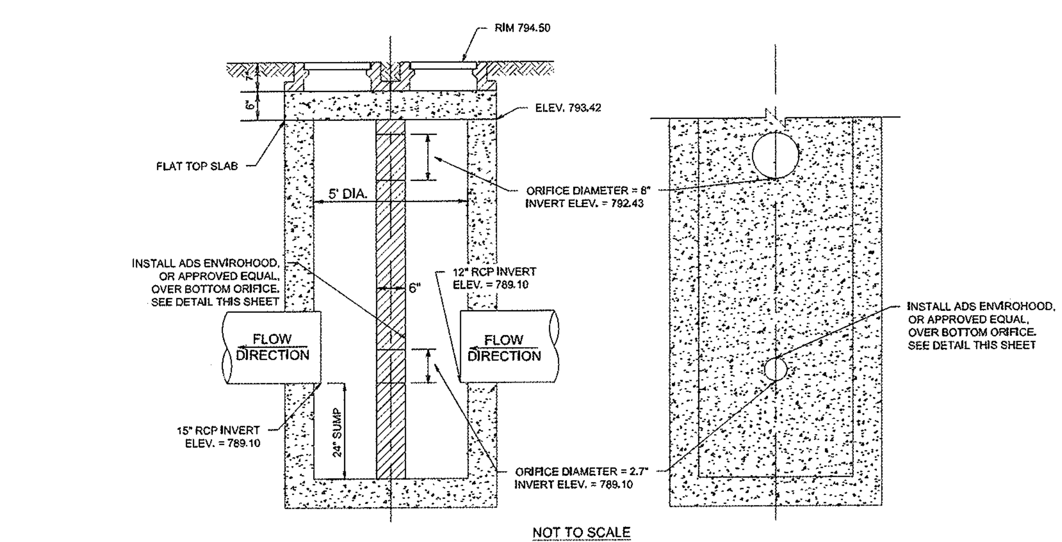
DIA.	T (min.)	A (±1")	C (±1")	D (±1")	E (±1")	K	R1	R2	APPROX. WEIGHT, lb.
12"	2"	8"	4'-3	6'-2	2'-0	1.3	10⅛"	9"	800
15"	2¼"	7"	4'-9	6'-3	2'-6	1.5	12½"	11"	1100
18"	2½"	11"	4'-1	6'-3	3'-0	1.8	16½"	12"	1300
21"	2¾"	11"	3'-6	6'-3	3'-6	2.1	16⅛"	13"	1500
24"	3"	1'-0	2'-6	6'-3	4'-0	2.3	16⅜"	14"	1800
27"	3¼"	1'-1	2'-5	6'-3	4'-6	2.8	18⅝"	14½"	2100
30"	3½"	1'-2	1'-10	6'-3	5'-0	2.9	19½"	15"	2400
33"	3¾"	1'-3	3'-6	8'-3	5'-6	3.1	23¾"	17½"	4100
36"	4"	1'-5	3'-1	8'-3	6'-0	3.4	24⅝"	20"	4200

INDIANA DEPARTMENT OF TRANSPORTATION
PRECAST CONCRETE
END SECTION
MAY 1996
STANDARD DRAWING NO.E 715-PCES-01

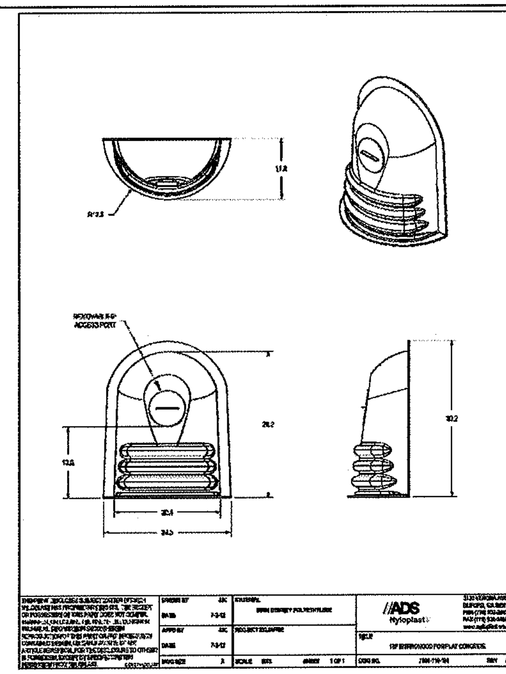


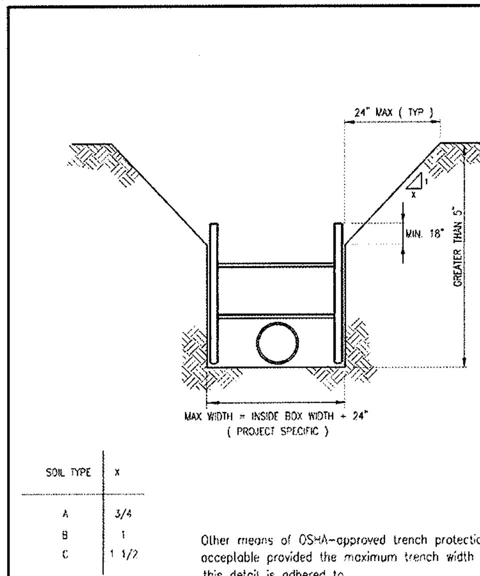
INDIANA DEPARTMENT OF TRANSPORTATION
FLAT TOP GRATE CASTING
TYPE 2
SEPTEMBER 1996
STANDARD DRAWING NO.E 720-MHCA-01

JAMES O. RINEHART IV
REGISTERED No. 10200495
STATE OF INDIANA
PROFESSIONAL ENGINEER



ORIFICE RESTRICTOR STRUCTURE



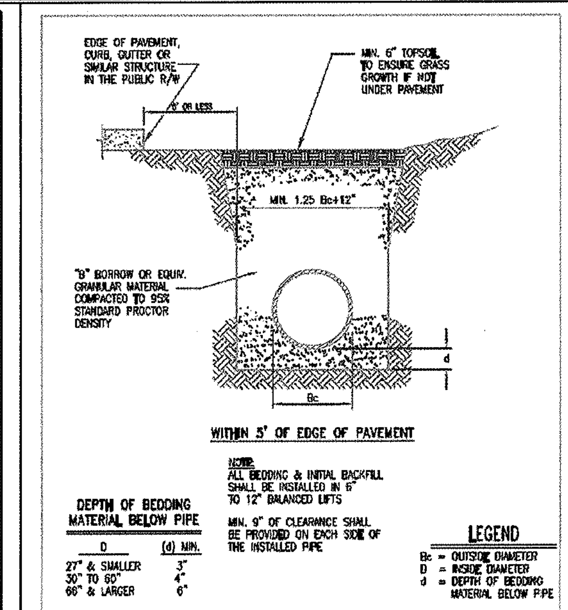


SOIL TYPE	X
A	3/4
B	1
C	1 1/2

Other means of OSHA-approved trench protection are acceptable provided the maximum trench width of this detail is adhered to.

MAXIMUM TRENCH WIDTH DETAIL FOR EXCAVATIONS

GREATER THAN 5' IN DEPTH WITHIN PUBLIC RIGHT-OF-WAY



WITHIN 5' OF EDGE OF PAVEMENT

NOTE:
ALL BEDDING & INITIAL BACKFILL SHALL BE INSTALLED IN 6" TO 12" BALANCED LIFTS

MIN. 9" OF CLEARANCE SHALL BE PROVIDED ON EACH SIDE OF THE INSTALLED PIPE

DEPTH OF BEDDING MATERIAL BELOW PIPE

D	(d) MIN.
27" & SMALLER	3"
30" TO 60"	4"
66" & LARGER	6"

LEGEND
Bc = OUTSIDE DIAMETER
D = INSIDE DIAMETER
d = DEPTH OF BEDDING MATERIAL BELOW PIPE

REINFORCED CONCRETE PIPE (RCP) TRENCH DETAIL

WITHIN 5' OF EDGE OF PAVEMENT

REVISIONS

NO.	DATE	DESCRIPTION
1	09-15-23	REVISED PER CITY AND CITIZENS COMMENTS
2	10-18-23	REVISED PER CITIZENS COMMENTS
3	11-15-23	REVISED PER CITY AND CITIZENS COMMENTS
4	11-27-23	REVISED PER CITIZENS WATER COMMENTS
5	01-08-24	REVISED PER CITY COMMENTS
6	02-09-24	REVISED PER CITY COMMENTS
7	02-23-24	REVISED PER CITY COMMENTS
8	03-04-24	REVISED PER CITIZENS WATER COMMENTS

ORIGINAL ISSUE DATE: 07-07-2023

PROJECT NO.: 220851 S04
PROJECT MANAGER: JOR
DESIGNED BY: MRV
DRAWN BY: MRV

CONSTRUCTION DETAILS

THE RIDGE ON WILLIAMS CREEK

INDIANAPOLIS INDIANA

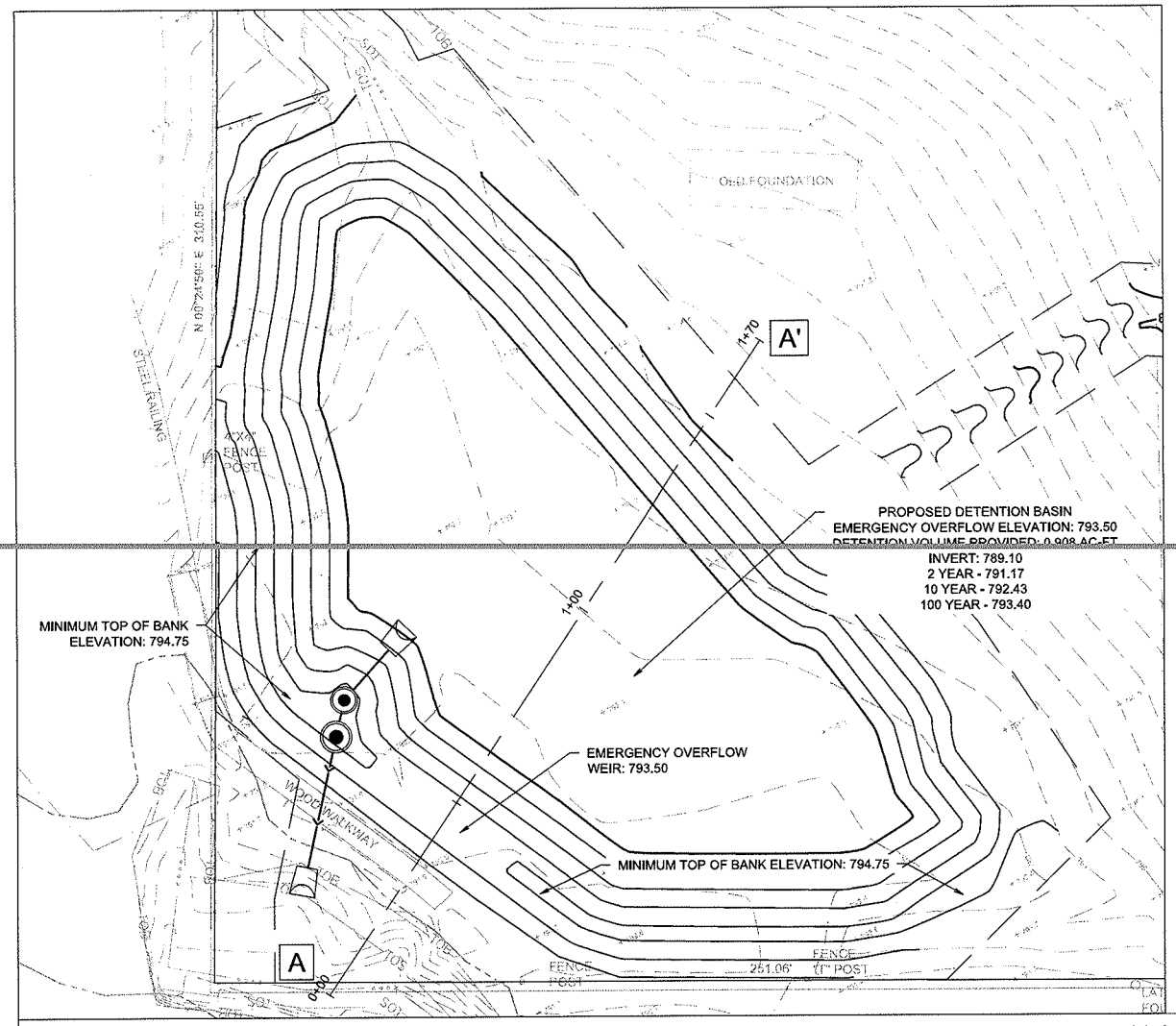
619 N Pennsylvania Street
Indianapolis, IN 46204
317.423.0690
www.v3co.com

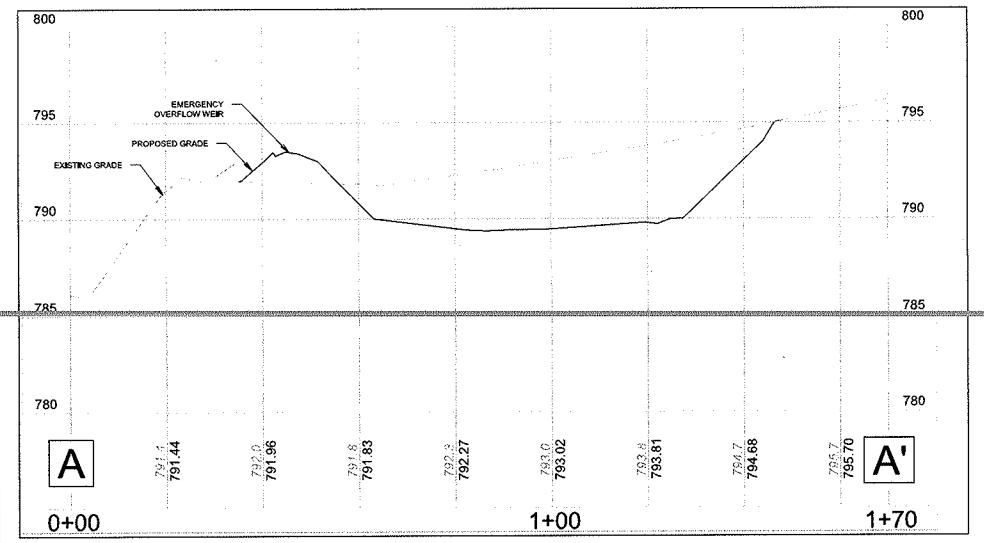
DRAWING NO.
C6.1

A202400023641

03/28/2024 10:58 AM
FAITH KIMBROUGH
MARION COUNTY IN RECORDER
FEE: $ 140.00
PAGES: 60
By: JN

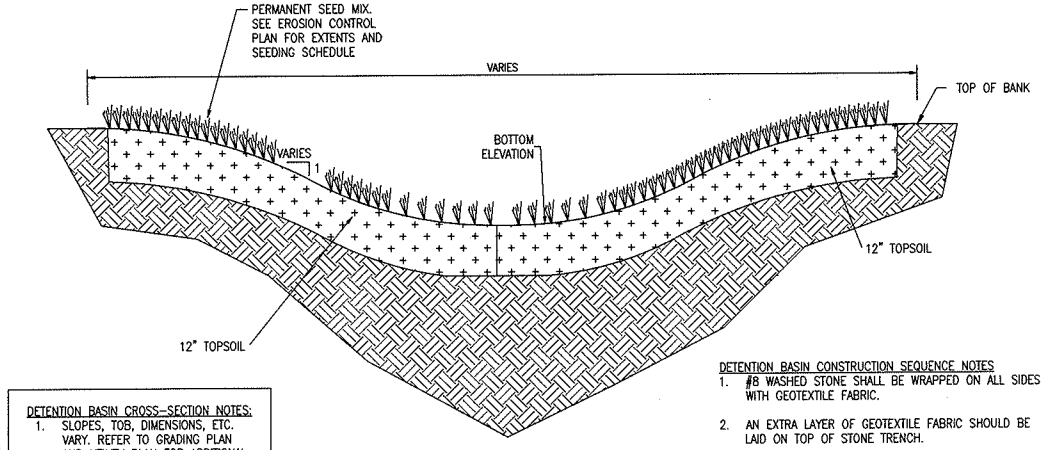
SCALE:
1"=20'





SCALE:
1"=20' (HORIZ)
1"=5' (VERT)

DETENTION BASIN AND BMP PLAN AND CROSS SECTIONS



DETENTION BASIN CROSS-SECTION NOTES:
1. SLOPES, TOB, DIMENSIONS, ETC. VARY. REFER TO GRADING PLAN AND UTILITY PLAN FOR ADDITIONAL DETAIL.

01 / C6.2 TYPICAL DETENTION BASIN CROSS SECTION
NOT TO SCALE

DETENTION BASIN CONSTRUCTION SEQUENCE NOTES
1. #8 WASHED STONE SHALL BE WRAPPED ON ALL SIDES WITH GEOTEXTILE FABRIC.
2. AN EXTRA LAYER OF GEOTEXTILE FABRIC SHOULD BE LAID ON TOP OF STONE TRENCH.
3. JUST BEFORE BIO SOIL IS ADDED, REMOVE THE EXTRA LAYER OF GEOTEXTILE FABRIC. THEN ADD BIO SOIL.
4. THE PERFORMANCE OF THE DETENTION BASIN/BIO-RETENTION FACILITY BMP IS BASED UPON INFILTRATION OF STORMWATER THROUGH THE PLANTING SOIL AND AGGREGATE BACKFILL. SEDIMENT ALLOWED TO ACCUMULATE IN THE PLANTING SOIL, THE GEOTEXTILE FABRIC, AND/OR AGGREGATE BACKFILL DURIING CONSTRUCTION WILL CLOG THE SYSTEM AND DIMINISH THE PERFORMANCE OF THE BMP. IT IS CRITICAL THAT THE CONTRACTOR MAINTAIN PROPER EROSION CONTROL PROCEDURES TO PREVENT SEDIMENT FROM ENTERING THE SYSTEM DURING CONSTRUCTION. BMP'S THAT DO NOT INFILTRATE STORMWATER DUE TO SEDIMENTATION IN THE SYSTEM OR OVERCOMPACTION OF THE PLANTING SOIL WILL BE RECONSTRUCTED AT THE CONTRACTOR'S EXPENSE.

EMERGENCY OVERFLOW WEIR GEOMETRY CALCULATION

OVERFLOW WEIR MUST CONVEY 1.25 TIMES THE 100 YEAR RELEASE RATE.

Q = ANTICIPATED 100 YEAR RELEASE RATE

DETENTION BASIN

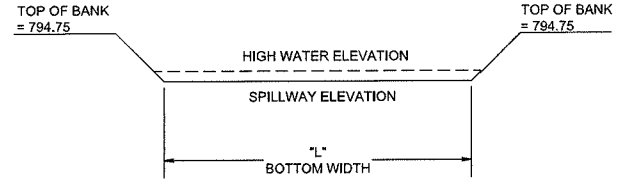
Q = 19.73 * 1.25 = 24.66 CFS

L = 30 FT

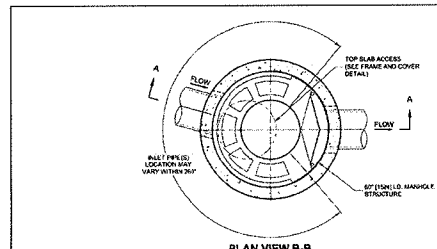
$H^{1.5} = \frac{Q*1.25}{3.367*L}$

H = 0.25'

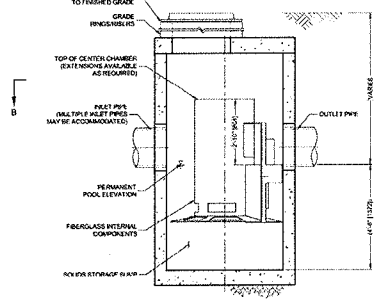
SPILLWAY ELEVATION = 793.50
HIGH WATER ELEVATION = 793.75



EMERGENCY SPILLWAY DETAIL



PLAN VIEW B-B
NOT TO SCALE



ELEVATION A-A
NOT TO SCALE

CASCADE separator™

CASCADE SEPARATOR DESIGN NOTES

THE STANDARD CS-5 CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (cfs [L/s])			
PEAK FLOW RATE (cfs [L/s])			
RETURN PERIOD OF PEAK FLOW (yrs)			
RIM ELEVATION			
PIPE DATA	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			

NOTES / SPECIAL REQUIREMENTS:

FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO DOWNLOAD LATEST REVISION OF THIS DRAWING FROM CONTECH WEBSITE PRIOR TO CONSTRUCTION.
4. THE CASCADE SEPARATOR STRUCTURE IS DESIGNED AS A TRAFFIC RATED, ASSUMING EARTH COVER OF 0 - 2 (0.0), AND GROUNDWATER ELEVATION AT OR BELOW THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
5. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. ALTERNATE UNITS ARE SHOWN IN [MILLIMETERS (mm)]

INSTALLATION NOTES
A. ANY EXCAVATION, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CASCADE SEPARATOR STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNITS IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS RECOMMENDED THAT ALL JOINTS BETWEEN PIPE SECTIONS AND GROUT BE WATER TIGHT.

CONTECH ENGINEERED SOLUTIONS LLC
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800.338.1122 | 513.645.7000 | 513.645.7993 FAX

CS-5
CASCADE SEPARATOR
STANDARD DETAIL

REVISIONS

NO	DATE	DESCRIPTION
7	02-23-24	REVISED PER CITY COMMENTS
8	03-04-24	REVISED PER CITIZENS WATER COMMENTS

ORIGINAL ISSUE DATE: 07-07-2023

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PROJECT NO.: 22051 S04
PROJECT MANAGER: JOR
DESIGNED BY: MRV
DRAWN BY: MRV

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DRAWING NO.
C6.2