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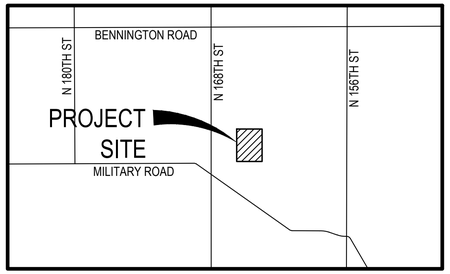
# HAGEN HILLS - EAST

LOTS 47 THRU 89 & OUTLOTS "F" & "G" INCLUSIVE

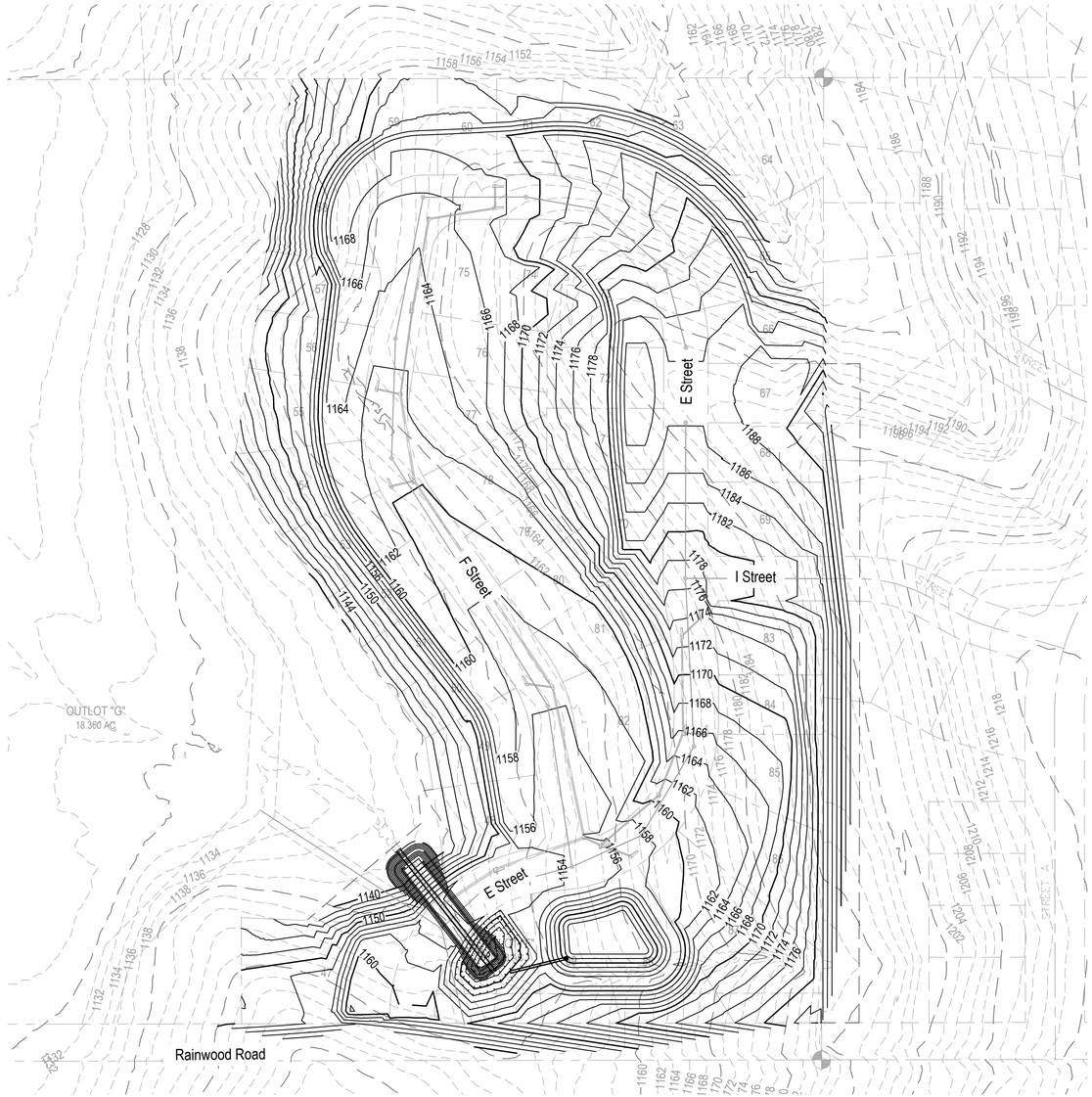
## GRADING & STORMWATER POLLUTION PREVENTION PLAN

## NDEE: CSW-202308063 Project Type: SWPPP

Located in the SW 1/4 of Section 15, Township 16, Range 11E, of the 6th P.M.
SID NO. 633
BENNINGTON, NEBRASKA




VICINITY MAP




N
100 0 100
1 inch = 100 ft.

### APPROXIMATE BID QUANTITIES

| ITEM | DESCRIPTION | QUANTITY | UNIT |
|---|---|---|---|
| 1 | MOBILIZATION | 1 | LS |
| 2 | CLEARING AND GRUBBING - GENERAL | 1 | LS |
| 3 | EXCAVATION ON-SITE (ESTABLISHED QUANTITY) | 110,791 | CY |
| 4 | STRIPPINGS (ESTABLISHED QUANTITY) | 10,990 | CY |
| 5 | CONSTRUCT SEDIMENT BASIN 'A' | 1 | LS |
| 6 | CONSTRUCT 30" CMP | 77 | LF |
| 7 | CONSTRUCT 54" CMP | 212 | LF |
| 8 | CONSTRUCT TYPE B RIP-RAP | 33 | TN |
| 9 | INSTALL STABILIZED CONSTRUCTION ENTRANCE | 1 | EA |
| 10 | CONSTRUCT DIVERSION | 300 | LF |
| 11 | INSTALL SILT FENCE | 2,371 | LF |
| 12 | INSTALL EROSION CONTROL MATTING | 18,452 | SY |
| 13 | SEEDING | 3.8 | AC |

### INDEX OF SHEETS



NDEE No. CSW-202308063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State of NE Certificate of Authorization #CA0008


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HAGEN HILLS - EAST
LOTS 47 THRU 89 & OUTLOTS "F" & "G" INCLUSIVE
GRADING & STORMWATER POLLUTION PREVENTION PLAN
SID 633
BENNINGTON, NEBRASKA

COVER

PROFESSIONAL CIVIL ENGINEER
BRETT T. CONYERS
E-17382
STATE OF NEBRASKA
9/8/2023

| No. | Revisions | Date | Description |
|---|---|---|---|
| 1 | | | |

Proj No: P2022.0078.001
Date: 9/8/2023
Designed By: BTC
Drawn By: TJR
Scale: AS SHOWN
Sheet: 1 of 9

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GRADING AND SWPPP GENERAL NOTES

1. All project procedures, materials, bonds and reserves shall conform to the City of Omaha Specifications for Public Works Construction 2020, and any additions thereto. It will be the responsibility of the CONTRACTOR to be aware of the contents of the aforementioned specifications. The aforementioned publication can be found at: http://www.cityofomaha.org/pw/index.php/CONTRACTORs-consultants2/CONTRACTORs/standard-plates-curb-ramps-and-specifications

2. Barricades shall conform to Omaha Public Works "Barricading Standards, Specifications, Methods Materials", and/or the "Manual on Uniform Traffic Control Devices", and any additions thereto, whichever is more stringent. The aforementioned publications can be found at https://publicworks.cityofomaha.org/images/PDF/Barricading-Standards-Specs-Methods-and-Materials.pdf and https://mutcd.fhwa.dot.gov/pdfs/2009r1r2/pdf_index.htm

3. The CONTRACTOR shall comply with all OSHA regulations.

4. A Geotechnical Exploration Report has been prepared for this project and is incorporated herein by reference. All recommendations of said report shall be followed in performing grading, paving, and utility operations. See Geotechnical Report prepared for this project by GEOTECHNICAL ENGINEER, dated MONTH DD YEAR.

5. Utilities are shown as a convenience for the CONTRACTOR. The locations of all aerial and underground utilities may or may not be indicated in these plans. The CONTRACTOR shall notify all utility companies before work is started to verify utility locations. No excavation will be permitted in the area until all utilities have been located and identified to the satisfaction of all parties and then, only with extreme care to avoid any possibility of damage. The CONTRACTOR will be responsible for repair of utilities damaged during construction.

6. Fill and backfill material shall be impervious material (clay/silt) free of frost, snow, ice, concrete, brick, stone, refuse, cinder ashes, organic matter, or any other material deemed unsuitable by the ENGINEER.

7. All demolition, removals, well closings, clearing and grubbing shall be paid for in a lump sum at the bid price for "CLEARING AND GRUBBING - GENERAL".

8. Payment for topsoil shall be based upon the bid Item “STRIPPINGS (ESTABLISHED QUANTITY)”. This quantity is the fixed plan 4” depth volume over the limits of grading. Work shall include stripping, stockpiling and respreading or stripping and transferring of topsoil for this fixed established quantity.

9. Payment for earthwork shall be based upon the bid Item “EXCAVATION ON-SITE (ESTABLISHED QUANTITY)”. This quantity is the fixed plan cut volume determined by a comparison of the proposed grade surface to the existing grade surface. The project has been designed to balance assuming a 35% shrinkage factor on the fill unless otherwise indicated. There will be no deviation from this pay quantity without a written change order resulting from a plan revision or field change. Work shall include excavation, haul, placing and compacting earthwork necessary for a completed project for this fixed established quantity. [Edit Note 6 if site does not balance.]

10. Excavation necessary for construction of the sediment basins are incorporated into the "EXCAVATION ON-SITE (ESTABLISHED QUANTITY)" quantity.

11. No tree removal shall occur between April 1 and July 15, unless a migratory bird inventory has been completed and no nesting of migratory birds is found. Tree removal between June 1 and July 31 shall further require a bat roosting inventory.

12. The Owner retains salvage rights to all buildings structures, and the contents therein; however, the CONTRACTOR is responsible for the demolition and removal of all structures following the salvage operations.

13. The CONTRACTOR shall obtain all necessary demolition permits prior to beginning demolition activities on site.

14. The CONTRACTOR shall obtain all necessary permits prior to beginning removal of the septic system.

15. The cost of the demolition permit, pre-demolition inspections, utility disconnect expenses, and any other expenses necessary to comply with demolition permits and regulations shall be paid for by the CONTRACTOR.

16. All wells on site shall be abandoned and properly closed in manner consistent with Nebraska Department of Health and Human Services Regulation and Licensure, Title 178, Chapter 12, Regulations Governing Water Well Construction, Pump Installation and Water Well Decommissioning Standards.

17. The CONTRACTOR shall implement dust control measures during demolition, removal and construction activities.

18. All rubbish, unsuitable material, debris, equipment, etc., resulting from demolition work shall be disposed of properly and in a legal manner.

19. The CONTRACTOR shall maintain positive drainage in existing road ditches and culverts draining into the project area.

20. The CONTRACTOR shall maintain and preserve utilities that traverse the site and serve premises as long as those utilities are required.

21. The CONTRACTOR shall monitor perimeter silt fencing and install additional silt fencing as necessary or as directed by the ENGINEER. Payment shall be made at the unit price for "Install Silt Fence". (See the Erosion Control Feature Maintenance Schedule).

22. Diversion berms and ditches shall be constructed as necessary throughout the term of the project to properly control sediment erosion and protect adjacent properties as directed by the ENGINEER. This work will not be paid for directly but shall be subsidiary to items for which direct payment is made. [Remove last sentence if diversions are a bid item].

GRADING AND SWPPP GENERAL NOTES

23. Construct diversion ditches in accordance with Section 9.5.7 "Temporary Diversion Dike" found in the 2014 Omaha Regional Stormwater Design Manual.

24. The CONTRACTOR shall remove all structures, private utilities, pavements and debris from within the site including the following:
    a. all buildings including the contents and foundations, retaining walls, decks,
    b. all private utility lines, including sanitary sewer service, storm sewer, natural gas, electrical, and communication,
    c. all utility appurtenances such as transformers, meters, valves, pressure reducers as well as concrete pads and structures, as coordinated with Metropolitan Utilities District or the Omaha Public Power District,
    d. all foundation walls, partition walls, columns, piers, beams, or other projections, floors, and all other footings,
    e. all asphalt and concrete pavement,
    f. all light poles and light pole bases,
    g. all gravel, and rubbish, or other debris found on site,
    h. all fences within project boundary (all fences may not be shown on plan),
    i. all septic tanks and septic appurtenances.

25. Initial stripping can occur only in an area of cut and the corresponding fill area required to construct the embankment along the downstream side of the basins. At the end of each day, when weather conditions warrant, and until such time as it is possible to construct sediment basins, the CONTRACTOR shall construct a sediment trap at any and all low spots where water falling on bare ground might leave the site. The temporary sediment traps shall conform to the Omaha Regional Stormwater Design Manual, Section 9.5.14. Once the sediment basin has been constructed and approval given by the INSPECTOR, stripping can occur throughout the balance of the site.

26. Topsoil shall be stripped to a depth of at least 4" and stockpiled on site for redistribution in future unpaved areas upon completion of grading. The location of the stripping stockpiles are at the discretion of the CONTRACTOR; however, stockpiles must be located within an area protected by stormwater pollution prevention measures.

27. Following stripping operations and removal of any observed unsuitable soils, the exposed soils shall be proofrolled with a fully loaded, tandem axle dump truck providing a minimum gross weight of 25 tons, or other equipment with an equivalent subgrade loading. Unsuitable soils observed during proofrolling shall be improved by scarification to a 9" depth and recompacted. Scarified soils which cannot be recompacted to specified density shall be undercut and replaced with stable fill.

28. Existing ditches and eroded areas shall be undercut a minimum of 12 inches on all bottoms and sides prior to placement of any fill. Separate payment will not be made for undercutting.

29. All basement or other excavations shall be backfilled with suitable material and compacted as structural fill.

30. Where open excavations are not backfilled within 24 hours, the CONTRACTOR shall encircle the open area by a standard snow fence.

31. Fill placed on a slope steeper than a 5H:1V shall be benched before placing fill, with a maximum riser height on the order of 2', separated by horizontal steps that are wide enough to accommodate compaction equipment.

32. All fill and backfill shall be placed in lifts of 9" or less in loose thickness. All fill shall be compacted to a minimum 95% of the maximum dry density at a moisture content 3% below to 4% above optimum as determined by ASTM D698 (Standard Proctor) or as recommended by the GEOTECHNICAL ENGINEER.

33. Fill and Backfill shall be inspected and tested periodically at the discretion of the ENGINEER for adherence to material, compaction, and moisture specifications.
    a. Fill or backfill failing to meet compaction and moisture content specifications shall be reworked and retested at the CONTRACTOR'S expense.
    b. Material deemed unsuitable by the ENGINEER shall be removed and replaced. Reimbursement for removal of unsuitable materials will be made at the contract unit price for, "EXCAVATION ON-SITE (ESTABLISHED QUANTITY)".

34. The CONTRACTOR shall give the ENGINEER 72 hours notice to allow time to perform a survey check of the graded site prior to respreading topsoil. The CONTRACTOR shall obtain the ENGINEER'S approval of the work prior to respreading topsoil or removing equipment from the site. Any re-mobilization or re-work required due to the circumstances described in this paragraph shall be performed by the CONTRACTOR at no additional cost.

35. The final grade of street rights-of-way shall be within 0.2' +/- of the design grade. The final grade of the lots shall be within 0.5' +/- of the design grade. Any re-mobilization or re-work required to meet these tolerances shall be performed by the CONTRACTOR at no additional cost.

36. All disturbed areas except the street rights-of-way shall be seeded. Seeding shall be alfalfa, rye, oats or wheat cover crop at 90 lbs per acre. Fertilizer (20-10-10) shall be applied at 50 lbs per acre.

37. Areas to receive erosion control matting shall be seeded in accordance with the City of Omaha Type B mix.

**Part VII. Standard Conditions and Requirements**

These general conditions shall not preempt any more stringent requirements found elsewhere in this permit.

**A. Inspections**

1. At a minimum, there must be a site inspection in accordance with one of the two schedules listed below
    a. At least once every seven (7) calendar days, excluding nonbusiness hours
    b. Once every 14 calendar days and within 24 hours of the occurrence of a storm event of 0.25 inches or greater, or the occurrence of runoff from snowmelt sufficient to cause a discharge, excluding nonbusiness hours.
2. Inspection frequency may be reduced to at least once every month if:
    a. The entire site is temporarily stabilized;
    b. Runoff is unlikely due to winter conditions (e.g., site is covered with snow, ice, or the ground is frozen);
    c. Reduced inspection frequency does not relieve the permittee of the maintenance responsibilities during interim periods.
3. Inspections must be conducted by qualified personnel provided by the operator or cooperatively by multiple operators.
4. Representative inspections may be conducted on long narrow linear construction such as utility lines and pipelines construction projects when inspection vehicle access may increase the potential for erosion. In these circumstances, controls must be inspected at the permit specified frequency, and include a representational portion of the construction that extends a quarter (0.25) mile above and below access points not to exceed the reach of the project where a roadway, undisturbed right-of-way, or other similar feature intersects the construction site.
5. The following areas at minimum must be inspected:
    a. All areas that have been cleared, graded, or excavated and that have not yet completed stabilization;
    b. All storm water controls installed at the site to comply with this permit;
    c. Material, waste, borrow, or equipment storage and maintenance areas covered by this permit that are managed by the owner and/or operator;
    d. All areas where storm water typically flows within the site, including drainage ways designed to divert, convey, and/or treat storm water;
    e. All points of discharge from the site, unless considered unsafe or inaccessible using the best professional judgment of the inspector; and
    f. All locations where stabilization measures have been implemented.
6. For each inspection required above, the permittee must complete an inspection report. At a minimum, the inspection report must include:
    a. The inspection time and date;
    b. Names and titles of personnel making the inspection;
    c. Weather information for the period since the last inspection (or since commencement of construction activity if this is the first inspection) including a best estimate using publicly accessible data of the beginning of each storm event, duration of each storm event, approximate amount of rainfall for each storm event (in inches), and whether any discharges occurred;
    d. Weather information and a description of any discharges occurring at the time of the inspection;
    e. Location(s) of discharges of sediment or other pollutants from the site;
    f. Location(s) of BMPs that need to be maintained;
    g. Location(s) of BMPs that failed to operate as designed or proved inadequate;
    h. Monitoring results if requested;
    i. Records of grading activity since last inspection;
    j. Location(s) where additional BMPs are needed that did not exist at the time of inspection; and
    k. Corrective action that required changes to the SWPPP and the date the plan changes were implemented.

1. **Allowable Storm Water Discharges**
Subject to compliance with the terms and conditions of this permit, the permittee is authorized to discharge pollutants in:
    a. Storm water associated with large and small construction activity as defined in Part VIII;
    b. Storm water discharges designated by the Director requiring a storm water permit under NDEE Title 119, *Rules and Regulations Pertaining to the Issuance of Permits under the National Pollutant Discharge Elimination System (NPDES)* Chapter 2.002.06E.
    c. Part I.C.1.a and Part I.C.1.b allowable discharges commingled with an authorized discharge by a different **NPDES** permit and/or a discharge that does not require NPDES permit authorization; and
    d. Storm water discharges from support activities (e.g., equipment staging yards, material storage areas, excavated material disposal areas, borrow areas, etc.) provided:
        1) The support activity is directly related to the construction site required to have NPDES permit coverage for discharges of storm water associated with construction activity;
        2) The support activity is not a commercial operation serving multiple unrelated construction projects by different **operators**, and does not operate beyond the completion of the construction activity at the last construction project it supports; and
        3) Appropriate controls and measures are identified in a **Storm Water Pollution Prevention Plan (SWPPP)** covering discharges from the support activity areas.

2. **Allowable Non-Storm Water Discharges**
The permittee is authorized for the following:
    a. Discharges from firefighting activities;
    b. Fire hydrant flushings;
    c. Water used to wash vehicles where detergents are not used;
    d. Water used to control dust;
    e. Potable water including uncontaminated water line flushings;
    f. Routine external building wash down that does not use detergents;
    g. Pavement wash water where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been recovered) and where detergents are not used;
    h. Uncontaminated air conditioning or compressor condensate;
    i. Uncontaminated groundwater or spring water;
    j. Foundation or footing drains where flows are not contaminated with process materials such as solvent; and
    k. Landscape irrigation.

3. **Prohibited Non-Storm Water Discharges**
The permittee is prohibited for discharging the following:
    a. Wastewater from the washout of concrete, unless managed by appropriate control;
    b. Wastewater from the washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials;
    c. Fuels, oils, and other pollutants used in vehicle and equipment operation and maintenance; and
    d. Soaps or solvents used in vehicle equipment washing.

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GRADING & STORMWATER POLLUTION PREVENTION PLAN
SID 633
BENNINGTON, NEBRASKA

GENERAL NOTES

PROFESSIONAL CIVIL ENGINEER
BRETT T. CONYERS
E-17382
STATE OF NEBRASKA
9/8/2023

| No. | Revisions | Date |
|---|---|---|
| 1 | Description | |

Proj No: P2022.078.001
Date: 9/8/2023
Designed By: BTC
Drawn By: TJR
Scale: AS SHOWN
Sheet: 2 of 9

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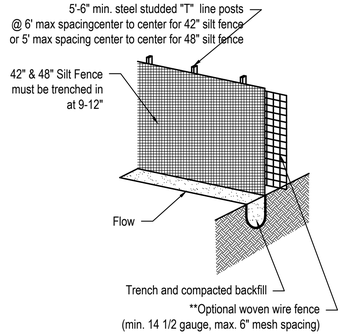
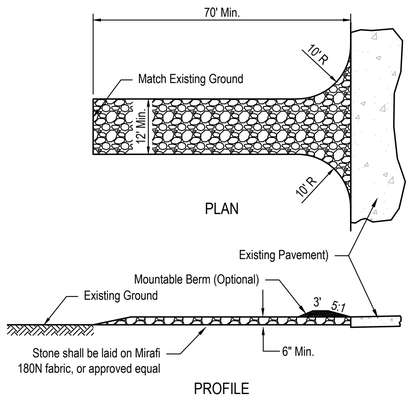



NOTES:

1. Acceptable silt fence specifications- AOS (#20 - 50 Sieve), Water Flow Rate (50 gpm/ sq. ft. - 125 gpm/ sq.ft), Tensile Strength (Grab) - (Min. 120 Warp or greater and Elongation (5-25%)
2. On each new run of silt fence spray paint the beginning of the run with 0+00 and spray paint the end with the date of installation and LF of the run
3. Silt fence should be securely fastened to each steel support post or to woven wire which is in turn attached to the steel fence posts. A minimum of 3 ties are required for each post. To be located in the top 12"of the silt fence.
4. Steel posts which support the silt fence shall be installed on a slight angle toward the anticipated runoff source. (Incline all posts 20° Max. from vertical, toward flow)
5. Silt fence shall be trenched in with a silt fence plow so that the downslope face of the trench is flat and perpendicular to the line of flow
6. Silt fence shall be removed when it has served its usefulness so as not to block or impede storm flow or drainage
7. Sediment trapped by this practice shall be uniformly distributed on the source area prior to topsoiling.

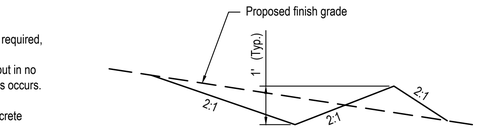
## SILT FENCE
**NOT TO SCALE**




NOTES

1. Contractor shall construct the stabilized entrance to the length required, but not less than 70'
2. The width of the construction entrance shall be 12' minimum, but in no case less than the full width at points where ingress and egress occurs.
3. The minimum thickness of the stone layer shall be 6".
4. The stone size shall be 2" diameter or a reclaimed broken concrete equivalent.
5. All surface runoff that flows or is diverted towards the construction entrance shall be intercepted and piped across the entrance. If piping is impractical, construction of a mountable diversion berm with 5H:1V slopes is permitted.
6. The entrance shall be maintained in a condition which will prevent tracking or discharge of sediment onto public right-of-way. This may require periodic placement of new top dressing stone and additional stone as conditions warrant. Maintenance shall include the repair and/or cleanout of any measures used to trap sediment.
7. Wheels of vehicles leaving the site shall be cleaned to remove sediment prior to entrance onto public right-of-way. When washing is required, it shall be done on an area stabilized with stone which drains into an approved sediment trapping device.
8. All sediment spilled, dropped, tracked, or washed onto public rights-of-way must be removed immediately.
9. Inspections are required on a re-occuring periodic schedule and after each rainfall event. Corrective measures shall be implemented to address maintenance issues noted during inspections.

## STABILIZED CONSTRUCTION ENTRANCE
**NOT TO SCALE**



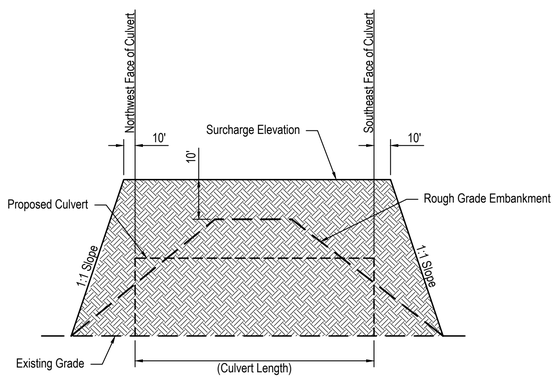

NOTES:

1. The Erosion Control Terrace shall act as a Level Spreader as described in 9.5.10 of the Omaha Regional Stormwater Design Manual.
2. The level lip shall be constructed at 0 percent grade to ensure uniform spreading of stormwater runoff.
3. Construct a 20 ft transition section from the diversion channel to blend smoothly to the width and depth of the spreader.
4. The spreader/terrace shall be inspected after every ½" of rainfall and repairs made as needed.
5. Construction traffic should not cross the terrace and if so, repairs made as needed.
6. The spreader/terrace shall be constructed in areas where mass grading has just been completed so as to prevent erosion from washing out newly graded areas.

## TYPICAL EROSION CONTROL TERRACE
**NOT TO SCALE**

SURCHARGE NOTES

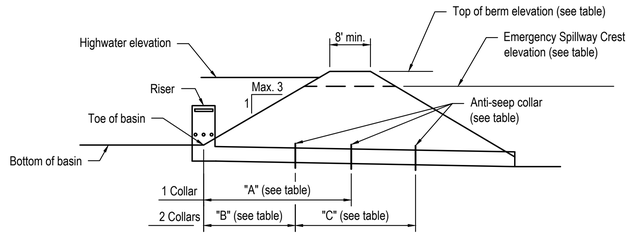
1. To allow for anticipated settlement of the future culverts, the CONTRACTOR shall surcharge the culvert location by placing temporary fill to the approximate finish grade as shown in the surcharge section below.
2. The surcharge material shall remain over the culvert location until its removal is authorized by the GEOTECHNICAL ENGINEER. The Surcharge will be removed by others. The CONTRACTOR shall coordinate with the GEOTECHNICAL ENGINEER for installation of a settlement plate prior to placing fill.
3. The CONTRACTOR is referred to the geotechnical report referenced in Grading Note 4 for further information.
4. The CONTRACTOR is responsible to maintain flow in the existing creek throughout construction. The ENGINEER shall stake the alignment of any temporary pipes. See Sheet 4. These pipes shall be paid for separately.




**Surcharge Section**
Not to Scale

Note: Surcharge shall extend 10' (min.) beyond northwest and southeast culvert ends before sloping to existing grade. The estimated surcharge volume is 5,380 CY beyond the rough grade contours shown on the plan.

## SURCHARGE DETAIL
**NOT TO SCALE**



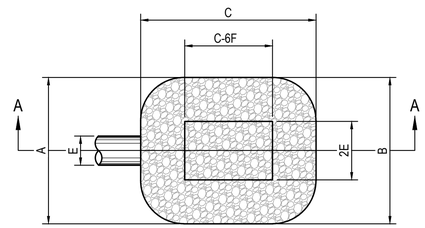

## ANTI-SEEP COLLAR DETAIL
**NOT TO SCALE**

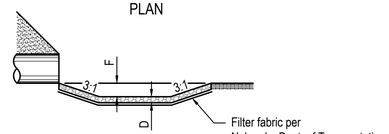
NOTES

1. Anti-Seep Collars shall be a minimum of 2 feet from a joint.
2. Contractor to use 1 or 2 collar option.
3. Contractor may choose to construct concrete collar similar to Standard Plate 700-01, except that the collar size shall match the table below. Otherwise, construct metal anti-seep collar in accordance with Figure 9-39 "Detail of Anti-Seep Collar" found in the 2014 Omaha Regional Stormwater Design Manual with Engineer approved shop drawings.

ANTI-SEEP COLLAR DATA TABLE

| Basin No. | 1 Collar Size (ft by ft) | 2 Collar Size (ft by ft) | "A" (ft) | "B" (fit) | "C" (ft) |
|---|---|---|---|---|---|
| A | 7.1 | 4.8 | 34 | 26 | 16 |




SECTION A - A

| SCOUR HOLE TABLE | | | | | | | |
|---|---|---|---|---|---|---|---|
| BASIN | A / B | C | D | E | F | RIP-RAP TYPE | PAY QUANTITY | FABRIC QUANTITY |
| A | 10' | 8' | 1.9' | 2.5' | 0.8' | B | 8 TN | 17 SY |

## PREFORMED SCOUR HOLE DETAIL
**NOT TO SCALE**
(NDOT Drainage and Erosion Control Manual, p. 2-54)
(Fabric cost is subsidiary to riprap bid item)

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DETAILS

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Sheet: 3 of 9

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MAINTENANCE SCHEDULE:

The following Maintenance Schedule has been provided. The INSPECTOR must perform the Inspections. The OPERATOR/CONTRACTOR must perform all needed maintenance. Furthermore, all erosion control features requiring maintenance may not be listed below. The OPERATOR/CONTRACTOR and INSPECTOR must perform their respective duties on all BMP's that are not listed below as well.

1. Construction Entrance – The entrance shall be maintained in a condition which will prevent tracking or flow of sediment onto public rights-of-way. This may require periodic top dressing with additional stone or the reworking of existing stone as conditions demand and repair and/or cleanout of any structures used to trap sediment. All materials spilled, dropped, washed, or tracked from vehicles onto roadways or into storm drains must be removed immediately. The use of water trucks to remove materials dropped, washed, or tracked onto roadways will not be permitted under any circumstances.

2. Silt Fence - The maintenance measures are as follows: (2.1) silt fences shall be inspected immediately after each rainfall and at least daily during prolonged rainfall, any required repairs shall be made immediately; (2.2) close attention shall be paid to the repair of damaged silt fence resulting from end runs and undercutting; (2.3) should the fabric on a silt fence decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly; (2.4) sediment deposits must be removed when the level of deposition reaches approximately one-half the height of the barrier; and (2.5) any sediment deposits remaining in place after the silt fence is no longer required shall be dressed to conform to the existing grade, prepared and seeded.

3. Storm Drain Inlet Protection - The maintenance measures are as follows: (3.1) structures shall be inspected with each routine and rain inspection and repairs made as necessary and (3.2) structures shall be removed and the area stabilized when the remaining drainage area has been properly stabilized.

4. Temporary Diversion Dike - The measure shall be inspected after every storm and repairs made to the dike, flow channel, outlet or sediment trapping facility, as necessary. Once every 7 days, whether a storm event has occurred or not, the measure shall be inspected and repairs made if needed. Damages caused by construction traffic or other activity must be repaired before the end of each working day.

5. Temporary Fill Diversion - Since the practice is temporary and under most situations will be covered the next working day, the maintenance required should be low. If the practice is to remain in use for more than one day, an inspection shall be made at the end of each work day and repairs made to the measure if needed. The OPERATOR/CONTRACTOR should avoid the placement of any material over the structure while it is in use. Construction traffic should not be permitted to cross the diversion.

6. Temporary Sediment Trap - The maintenance measures are as follows: (6.1) sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half the design volume of the wet storage, sediment removal fromthe basin shall be deposited in a suitable area and in such a manner that it will not erode and cause sedimentation problems; (6.2) filter stone shall be regularly checked to ensure that filtration performance is maintained, stone choked with sediment shall be removed and cleaned or replaced; and (6.3) the structure should be checked regularly to ensure that it is structurally sound and has not been damaged by erosion or construction equipment, the height of the stone outlet should be checked to ensure that its center is at least 1 foot below the top of the embankment.

7. Temporary Sediment Basin – The basin embankment should be checked regularly to ensure that it is structurally sound and has not been damaged by erosion or construction equipment. The emergency spillway should be checked regularly to ensure that its lining is well established and erosion-resistant. The basin should be checked after each runoff producing rainfall for sediment cleanout and trash removal. When the sediment reaches the cleanout level, it shall be removed and properly disposed of.

8. Temporary Seeding - Areas which fail to establish vegetative cover adequate to prevent rill erosion will be re-seeded as soon as such areas are identified. Control weeds by mowing.

9. Permanent Seeding - The maintenance measures are as follows: (9.1) in general, a stand of vegetation cannot be determined to be fully established until it has been maintained for one full year after planting; (9.2) new seedlings shall be supplied with adequate moisture, supply water as needed, especially late in the season, in abnormally hot or dry conditions, or on adverse sites, water applications shall be controlled to prevent excessive runoff; (9.3) inspect all seeded areas for failures and make necessary repairs, replacements, and reseedings within the planting season, if possible; [9.3.a] if stand is inadequate for erosion control, over seed and fertilize using half of the rates originally specified; [9.3.b] if stand is 60% damaged, re-establish following seedbed and seeding recommendations; [9.3.c] if stand has less than 40% cover, re-evaluate choice of plant materials and quantities of soil amendments. To do this, the soil must be tested to determine what factors are responsible and then re-establish the stand following the soil and seeding recommendations.

10. Mulching - All mulches and soil coverings should be inspected periodically (particularly after rainstorms) to check for erosion. Where erosion is observed in mulched areas, repair the erosion and additional mulch should be applied. Continue to monitor these areas until which time they become permanently stabilized. Where mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface; repair as needed.

11. Soil Stabilization Blankets & Matting - All soil stabilization blankets and matting should be inspected periodically following installation, particularly after rainstorms to check for erosion and undermining. Any dislocation or failure should be repaired immediately. If washouts or breakage occurs, reinstall the material after repairing damage to the slope or ditch. Continue to monitor these areas until which time they become permanently stabilized; at that time an annual inspection should be adequate.

12. Street Cleaning / Sweeping - The maintenance measures are as follows: (12.1) evaluate access points daily for sediment tracking; (12.2) when tracked or spilled sediment is found on paved surfaces, it will be removed daily, during times of heavy track-out, such as during rains, cleaning may be done several times throughout the day; (12.3) unknown spills or objects will not be mixed with the sediment; and (12.4) if sediment is mixed with other pollutants, it will be disposed of properly at an authorized landfill.

GENERAL NOTES

1. All OPERATORS/CONTRACTORS must confirm with the APPLICANT that any and all applicable governmental approvals have been received prior to the start of work.

2. BMP's may not be removed without INSPECTOR and applicable governmental approval.

3. The APPLICANT, INSPECTOR, and CONTRACTORS/OPERATORS must adhere to all Good Housekeeping BMP's presented within the Omaha Regional Stormwater Design Manual Chapter 9 Section 9.6. Good Housekeeping BMP's focus on keeping the work site clean and orderly while handling materials and waste in a manner that eliminates the potential for pollutant runoff. Good Housekeeping BMP's such as Sanitary Waste Management (9.6.2), Solid Waste Management (9.6.3), Material Delivery & Storage Street Cleaning / Sweeping (9.6.5), Vehicle & Equipment Fueling (9.6.6), and Concrete Washout (9.6.8) must be addressed when applicable. The aforementioned publication can be found at http://www.omahastormwater.org.

4. The SWPPP documents (e.g., NDEE–NPDES, SWPPP-SM, SWPPP-N, etc.) are essential and a requirement in one part is as binding as though occurring in all. The SWPPP documents are complementary. The documents describe and provide the complete SWPPP. The APPLICANT, INSPECTOR, and/or CONTRACTORS/OPERATORS may not take advantage of any apparent SWPPP errors or omissions. The INSPECTOR shall notify the APPLICANT, DESIGNER, and CONTRACTORS/OPERATORS promptly of any omissions or errors. The APPLICANT shall instruct the DESIGNER to make any corrections necessary to fulfill the overall intent of the SWPPP Documents (e.g., Grading Permit Modification Form). In the case of a discrepancy between parts of the SWPPP documents, the most stringent requirement shall rule.

## STANDARD DETAILS

| NUMBER | NAME | LOCATION |
|---|---|---|
| 9.5.2 | Construction Entrance | Omaha Regional Stormwater Design Manual |
| 9.5.3 | Construction Road Stabilization | Omaha Regional Stormwater Design Manual |
| 9.5.4 | Silt Fence | Omaha Regional Stormwater Design Manual |
| 9.5.5 | Storm Drain Inlet Protection | Omaha Regional Stormwater Design Manual |
| 9.5.6 | Culvert Inlet Protection | Omaha Regional Stormwater Design Manual |
| 9.5.7 | Temporary Diversion Dike | Omaha Regional Stormwater Design Manual |
| 9.5.8 | Temporary Fill Diversion | Omaha Regional Stormwater Design Manual |
| 9.5.9 | Check Dams | Omaha Regional Stormwater Design Manual |
| 9.5.11 | Temporary Slope Drain | Omaha Regional Stormwater Design Manual |
| 9.5.14 | Temporary Sediment Trap | Omaha Regional Stormwater Design Manual |
| 9.5.15 | Temporary Sediment Basin | Omaha Regional Stormwater Design Manual |
| 9.5.16 | Dust Control | Omaha Regional Stormwater Design Manual |
| 9.5.19 | Temporary Seeding | Omaha Regional Stormwater Design Manual |
| 9.5.20 | Permanent Seeding | Omaha Regional Stormwater Design Manual |
| 9.5.21 | Sodding | Omaha Regional Stormwater Design Manual |
| 9.5.22 | Mulching | Omaha Regional Stormwater Design Manual |
| 9.5.23 | Soil Stabilization Blankets & Matting | Omaha Regional Stormwater Design Manual |
| 9.5.25 | Wattle | Omaha Regional Stormwater Design Manual |
| 9.6.1 | Construction Scheduling & Matting | Omaha Regional Stormwater Design Manual |
| 9.6.2 | Sanitary Waste Management | Omaha Regional Stormwater Design Manual |
| 9.6.3 | Solid Waste Management | Omaha Regional Stormwater Design Manual |
| 9.6.4 | Material Delivery And Storage | Omaha Regional Stormwater Design Manual |
| 9.6.5 | Street Cleaning/Sweeping | Omaha Regional Stormwater Design Manual |
| 9.6.6 | Vehicle And Equipment Fueling | Omaha Regional Stormwater Design Manual |
| 9.6.7 | SWPPP Notification Sign | Omaha Regional Stormwater Design Manual |
| 9.6.8 | Concrete Washout | Omaha Regional Stormwater Design Manual |

The Omaha Regional Stormwater Design Manual can be found at: http://www.omahastormwater.org
The City of Omaha Standard Plates are at https://publicworks.cityofomaha.org/2020-standard-plate-list

## CONSTRUCTION ACTIVITIES & SCHEDULING

| ACTIVITY | SCHEDULE |
|---|---|
| Install all BMP's needed and associated with the Grading Phase such as stabilized construction entrances, silt basins, riser pipes, outlet pipes, silt traps, silt fence, diversions, terraces, etcetera. | Prior to any stripping of existing vegetation or grading. |
| Proceed with stripping of existing vegetation and grading in accordance with the grading plan, while disturbing no more than is necessary. | After Installing all BMP's needed and associated with the Grading Phase. Furthermore, INSPECTOR approval must be obtained before the start of any stripping of existing vegetation or grading. |
| Proceed with infrastructure installation. | Infrastructure installation must occur prior to any lot development. |
| Implement the installation of Temporary Seeding, Permanent Seeding, and/or Mulching. | Stabilization measures must be initiated as soon as possible in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 7 days after the construction activity in that portion of the site has temporarily or permanently ceased. |
| Implement the Installation all BMP's needed and associated with the Building Phase. | Building Phase BMP's must be installed concurrently with lot development. |
| Proceed with removal of BMP's. | BMP's may not be removed until each impacted drainage basin has been fully developed. Full development shall mean installation of pavement, buildings, and utilities, landscaping, and fully established permanent seeding. Furthermore, INSPECTOR approval must be obtained before the removal of any BMP's. |

ESTIMATED TIMELINE

1. Stripping of top soil and grading to begin fall of 2023.
2. Utilities construction will begin in spring of 2024.
3. Paving will begin spring 2024.
4. Site to be complete and stabilized by summer 2025.

## SITE INFORMATION

| | | | |
|---|---|---|---|
| 9/1/2023 (Estimated Start Date) | N.A. (PCWP Project Number) | CSW-202308063 (NDEE NOI Number) | |
| Hagen Hills (East) (Project Name) | | 168th & Rainwood Road (Address) | |
| Hagen Hills (Subdivision Name) | 633 (S & ID #) | Omaha (City) | Douglas (County) |
| 41.351790 (Latitude) | -96.176254 (Longitude) | Nebraska (State) | 68007 (Zip Code) |

| | | | |
|---|---|---|---|
| **Total Site Area (Acres)** | 24.18 | **Estimated Permit Duration (Months)** | 36 |
| **Disturbed Area (Acres)** | 24.00 | **Cut Volume (yd^3)** | 108,898 |
| **Undisturbed Area (Acres)** | 0.18 | **Fill Volume (yd^3)** | 110,791 |
| **Impervious Area Before Construction (%)** | 0 | **Runoff Coefficient Before Construction** | 0.30 |
| **Impervious Area After Construction (%)** | 0.60 | **Runoff Coefficient After Construction** | 0.52 |

## APPLICANT SWPPP CERTIFICATION

| | | |
|---|---|---|
| Hagen Hills, LLC (Business Name) | john@magnumcompanies.com (Representative's Email Address) | (402) 558-2200 (Phone Number) |
| John Hughes (Representative's Name) | 11550 I Street (Address) | (Fax Number) |
| (Project # Assigned by Applicant) | Omaha (City) / Nebraska (State) | 68137 (Zip Code) |

NDEE No. CSW-202308063

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GRADING & STORMWATER POLLUTION PREVENTION PLAN
SID 633
BENNINGTON, NEBRASKA

NOTES - STORMWATER POLLUTION PREVENTION

PROFESSIONAL CIVIL ENGINEER — BRETT T. CONYERS — E-17382 — STATE OF NEBRASKA — 9/8/2023

| Revisions | | | |
|---|---|---|---|
| No. | Date | Description | |

Proj No: P2022.078.001
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Drawn By: TJR
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Sheet: 4 of 9

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LEGEND

- Power Pole
- Guy Wire
- Light Pole
- Fire Hydrant
- Utility Valve (Water)
- Curb Inlet
- Manhole
- Fence Line
- Gas Line
- Water Line
- Power Line (Overhead)
- Diversion Berm
- Silt Fence
- Existing Contours
- Proposed Contours
- Sediment Basin Perimeter
- Limits of Construction
- Fill Areas
- Erosion Control Matting
- Surcharge

N

80 0 80

1 inch = 80 ft.

## NO GRADING & EROSION CONTROL REFERENCE NOTES

**INSTALL STABILIZED CONSTRUCTION ENTRANCE -** See Detail Sheet 4

CE 1 Install Stabilized Construction Entrance

**INSTALL SILT FENCE** - See Detail Sheet 4

SF 1 Silt Fence, 1530 LF

SF 2 Silt Fence, 841 LF

**CONSTRUCT DIVERSION -** See Figure 9-13 per ORSWDM - Subsidiary to other bid items

D 1 Diversion - Direct runoff from low point to sediment basin, 102 LF

D 2 Diversion - Direct runoff from low point to sediment basin, 198 LF

**CONSTRUCT SEDIMENT BASIN**

SB A Sediment Basin "A" - See Sheet 8

**GENERAL**

MS 1 Proposed Material Storage Area. Alternate location shall be approved by the Inspector. Storage area shall conform to Section 9.6.4 of the ORSWDM.

WS 1 Proposed Waste Storage Area. Alternate location shall be approved by the Inspector. Storage area shall conform to Sections 9.6.2 and 9.6.3 of the ORSWDM.

WO 1 Proposed Concrete Washout Facility. Alternate location shall be approved by the Inspector. Washout facility shall conform to Section 9.6.8 of the ORSWDM.

GN 1 SWPPP Notification Sign location. Sign shall to be provided by the INSPECTOR and shall conform to Section 9.6.7 of the ORSWDM.

GN 2 Construct Surcharge over culvert pipe and Street E, see detail and notes on Sheet 3. See Plan & Profile on sheet 8.

GN 3 Construct temporary 54" CMP to maintain positive drainage under Street E. Exact location to be staked by the ENGINEER.

GN 4 Proposed 50' Grading Easement

GN 5 Proposed Grading Easement

TYPE "A" SEEDING & EROSION CONTROL MATTING, NORTH AMERICAN GREEN S-150

EM 1 Type "A" seeding & Erosion Control Matting, 1695 SY

EM 2 Type "A" seeding & Erosion Control Matting, 3340 SY

EM 3 Type "A" seeding & Erosion Control Matting, 13417 SY

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GRADING & STORMWATER POLLUTION PREVENTION PLAN

SID 633
BENNINGTON, NEBRASKA

GRADING & SWPPP - GRADING

PROFESSIONAL CIVIL ENGINEER
BRETT T. CONYERS
E-17382
STATE OF NEBRASKA
9/8/2023

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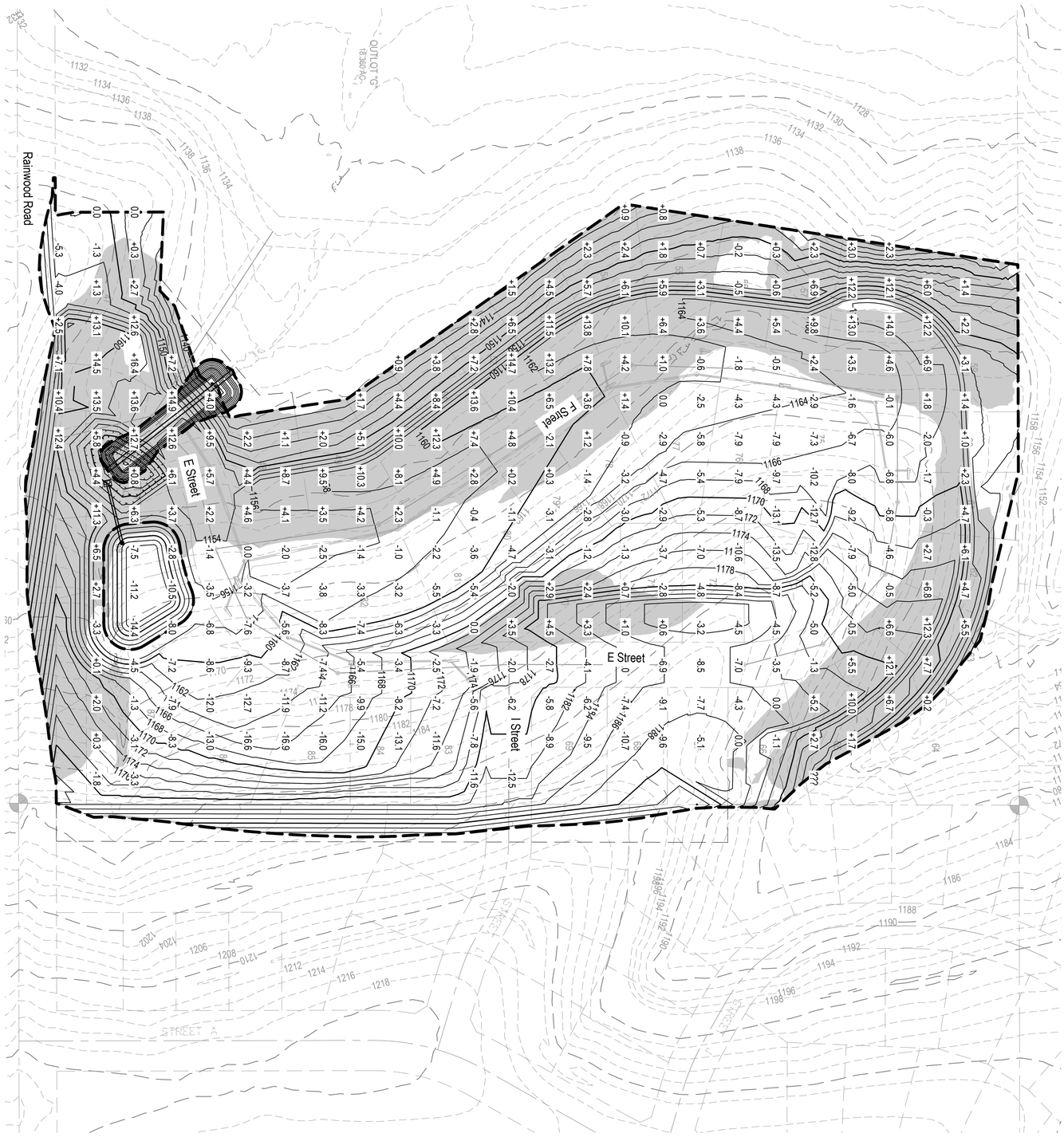


LEGEND

- Existing Contours
- Proposed Contours
- Sediment Basin Perimeter
- Limits of Construction
- Fill Areas
- Wetlands

1 inch = 80 ft.

**NDEE No. CSW-202308063**

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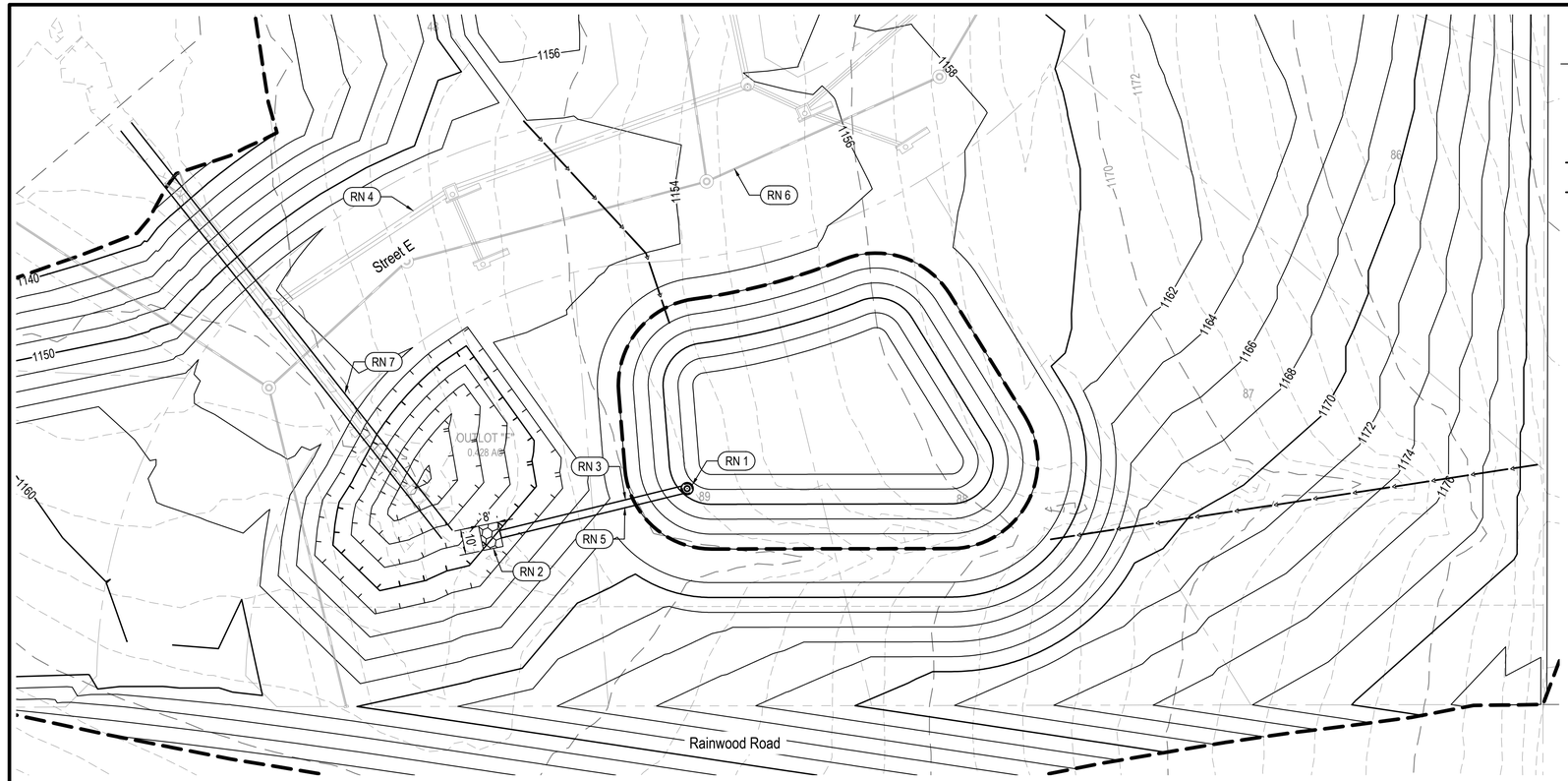



LEGEND

- Power Pole
- Guy Wire
- OHP – OHP — Power Line (Overhead)
- Diversion Berm
- Baffle
- 1120 — Existing Contours
- 1170 — Proposed Contours
- Sediment Basin Perimeter
- Limits of Construction
- Future Storm Sewer
- Rip-Rap Scour Hole

N

30 0 30

1 inch = 30 ft.

## NO REFERENCE NOTES

RN 1 Construct riser and base (per detail this sheet and data table below) and anti-vortex device (see Figure 9-32 per ORSWDM). Cost of riser and anti-vortex device shall be subsidiary to bid item "CONSTRUCT SEDIMENT BASIN 'A'".

RN 2 Construct type B rip-rap scour hole, 8 TON. See detail and table on sheet 3 for dimensions and depth of scour hole. Fabric shall be Mirafi 180N, or approved equal.

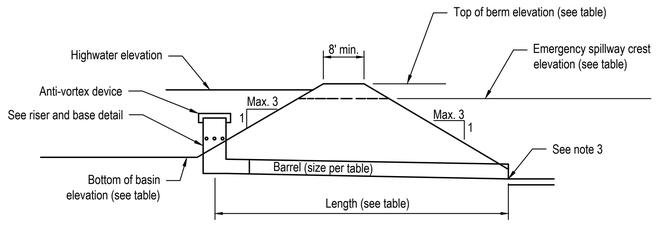
RN 3 Construct 30" CMP, 77 LF

RN 4 Future storm sewer structures

RN 5 Construct anti-seep collar per detail on sheet 3. Cost is subsidiary to sediment basin construction.

RN 6 Future sanitary sewer

RN 7 Temporary 54" CMP, See sheets




NOTES

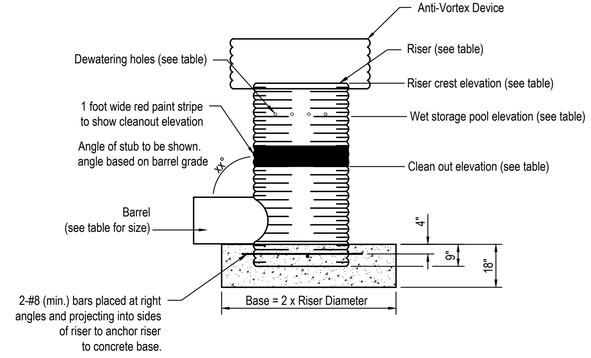
1. If spillway is constructed over fill, compact the embankment to a minimum of 90% of the Maximum Dry density within 3% below and 5% above optimum moisture as determined by ASTM D1557 (Modified Proctor), or as recommended by the Geotechnical Engineer. Conduct a a minimum of one compaction test every vertical foot of compacted fill placed, every 50 feet of embankment length. Provide test reports to the Engineer for review and approval. No testing or special compaction is required if spillway is constructed in cut areas on natural ground.

2. Riser and barrels shall be corrugated metal pipe. **Reused pipes in good condition meeting the size requirements may be used following approval by the Engineer. Reused risers will be required to crest at the elevation indicated in the table below. The configuration of orifice holes must also meet the requirements below - exceeding the number of orifice holes will not be permitted.**

3. **The discharge flow line of the barrel shall be verified by the Engineer.**

## BASIN DETAIL

**NOT TO SCALE**




NOTES:

1. Ensure that the concrete fills the bottom of the riser to the invert of the outlet pipe to counter flotation forces and prevent the riser from breaking away from the base.

2. If using aluminum or aluminized pipe risers, the embedded section shall be painted with zinc chromate or approved equivalent.

3. Position the bottom of the dewatering holes at the the "Wet-Storage Pool Elevation" indicated in the Sediment Basin Data Table. **Do not exceed the number of dewatering holes indicated.**

## RISER AND BASE DETAIL

**NOT TO SCALE**

SEDIMENT BASIN DATA TABLE

| Basin No. | Drainage Area (Ac.) | 2-Year Storm Event Discharge (cfs) | 10-Year Storm Event Discharge (cfs) | Wet Storage Provided (CY) | Dry Storage Provided (CY) | Clean Out Storage Provided (CY) | Highwater Elevation (ft) | 2-Year Storm Elevation (ft) | Top Berm Elevation (ft) | Bottom of Basin Elevation (ft) | Emergency Spillway Elevation (ft) | Emergency Spillway Width (ft) | Riser Type | Riser Diameter (in) | Throat/ Riser Crest Elevation (ft) | Number of Dewatering Holes | Riser Dewatering Holes Diameter (in) | Wet-Storage Pool Elevation (ft) | Clean Out Elevation (ft) | Anti-Vortex Device Diameter (in) | Anti-Vortex Device Height (in) | Barrel Diameter (in) | Barrel Length (ft) | Barrel Inlet Elevation (ft) | Barrel Outlet Elevation (ft) | Barrel Material |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 13.0 | 40 | 59 | 876 | 870 | 441 | 1155.00 | 1153.81 | 1156.00 | 1146.00 | N.A. | N.A. | CMP Riser | 30 | 1152.11 | 2 | 3 | 1149.65 | 1148.10 | 54 | 17 | 30 | 77 | 1147.63 | 1147.25 | CMP |

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GRADING & SWPPP - SEDIMENT BASIN A

PROFESSIONAL CIVIL ENGINEER
BRETT T. CONYERS
E-17382
STATE OF NEBRASKA
9/8/2023

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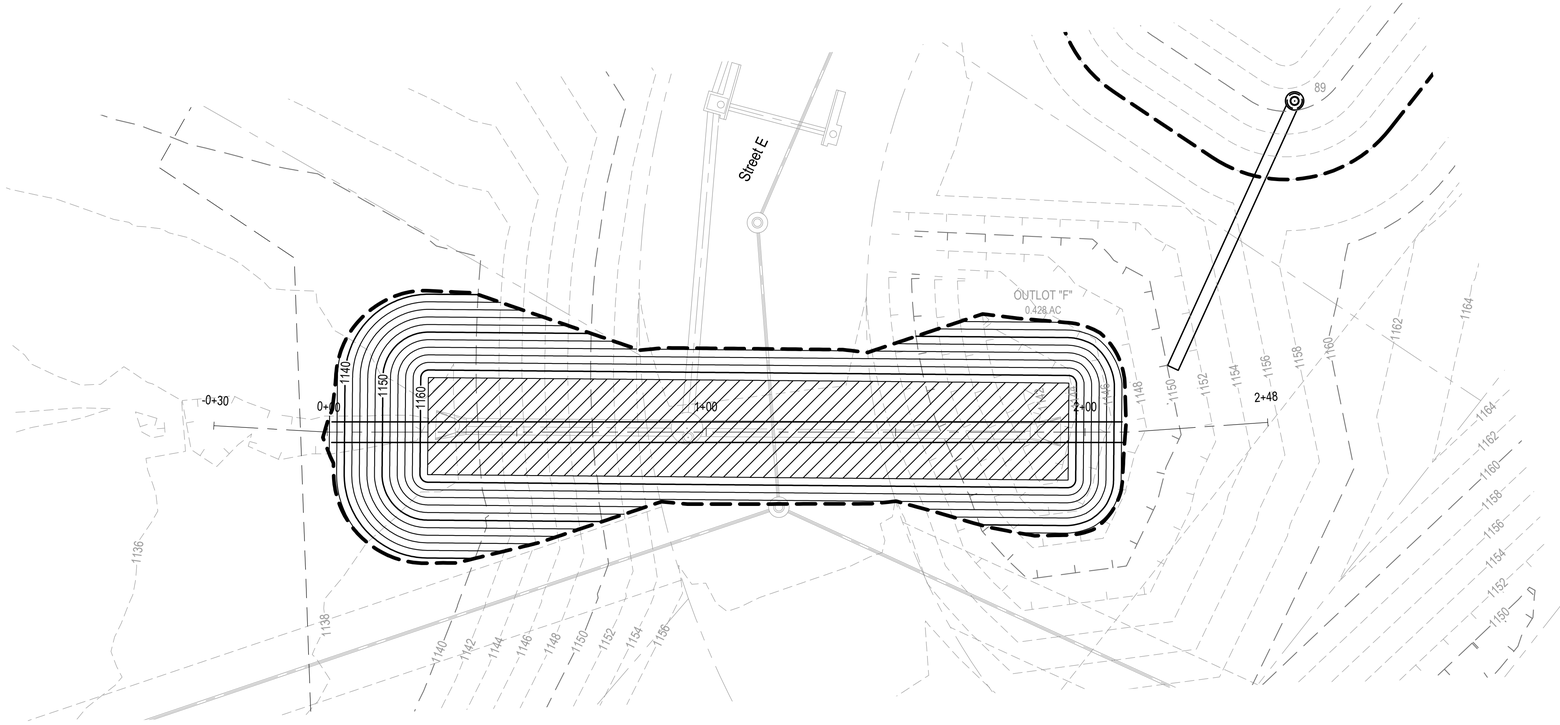
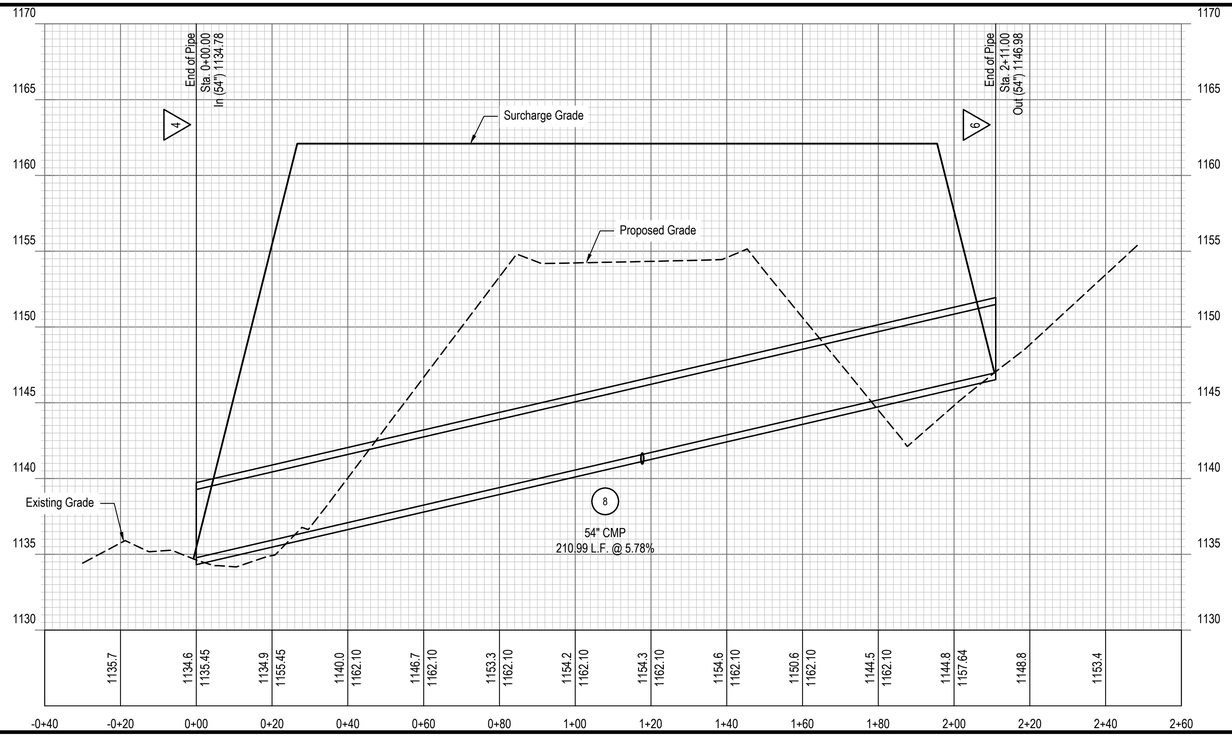
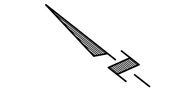



STREET E - SURCHARGE & CULVERT

*Scale: Horiz. 1"=20'*
*Vert. 1"=5'*




LEGEND

- 1120 — Proposed Contours
- 1170 — Surcharge Contours
- Toe of Surcharge

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GRADING & SWPPP -
TEMPORARY CULVERT

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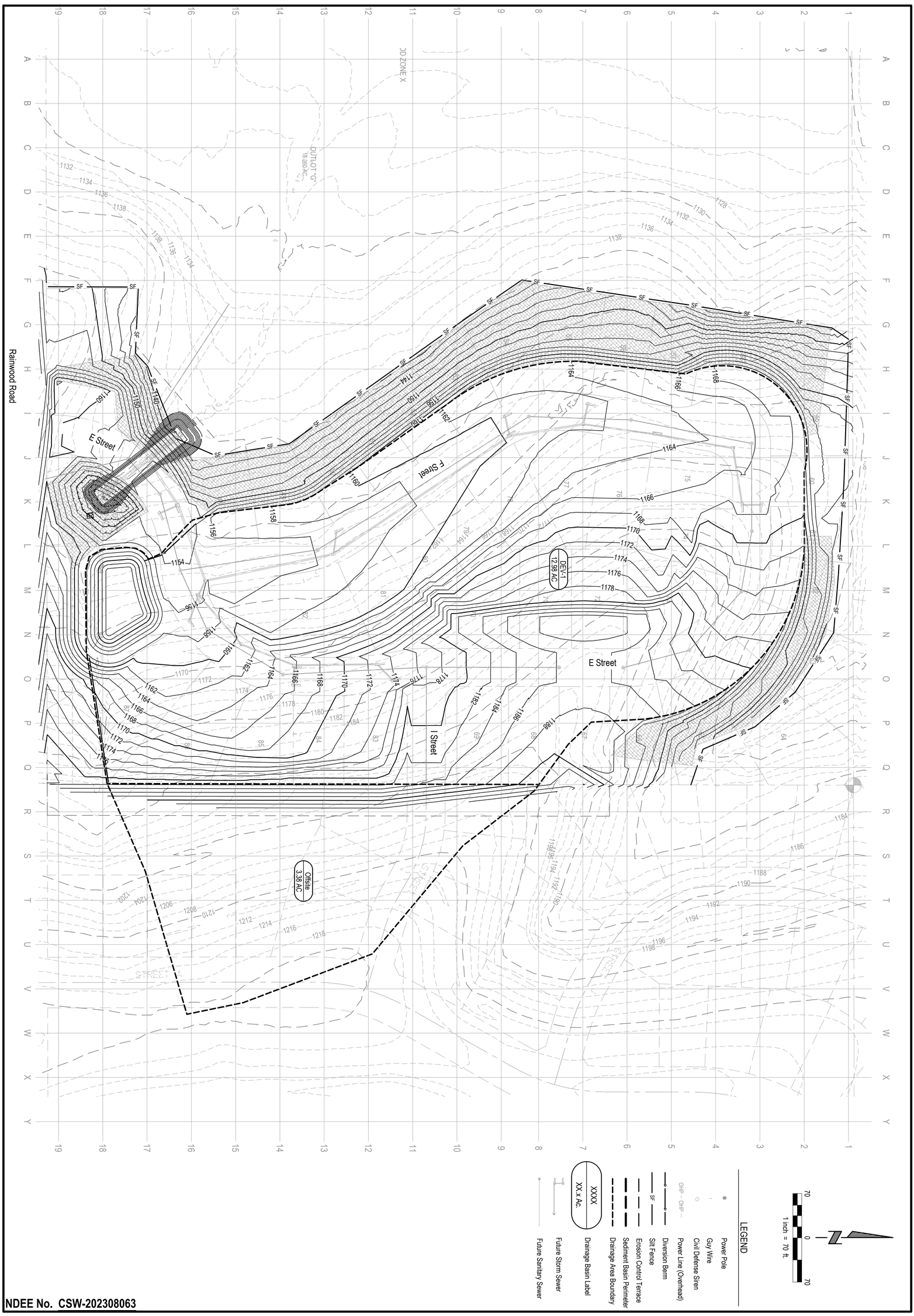


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| Revisions | | |
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| | Date | Description |

PROFESSIONAL CIVIL ENGINEER
BRETT T. COYNERS
STATE OF NEBRASKA

GRADING & SWPPP - DRAINAGE MAP

HAGEN HILLS - EAST
LOTS 47 THRU 89 & OUTLOTS "F" & "G" INCLUSIVE
GRADING & STORMWATER POLLUTION PREVENTION PLAN
SID 633
BENNINGTON, NEBRASKA

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