CITY OF NORMAN, OKLAHOMA

CONSTRUCTION PLANS FOR

IMHOFF CREEK BANK STABILIZATION

CLEVELAND COUNTY

SYMBOL LEGEND

- CONTROL POINT
- SURVEYED BENCHMARK
- AIR RELEASE VALVE
- ELECTRIC CONTROL BOX
- ELECTRIC METER
- FIRE HYDRANT
- FLAG POLE
- GATE POST
- GUARD RAIL POST
- GUY ANCHOR
- GUY POLE
- LIGHT POLE
- MAIL BOX
- POWER POLE/TELEPHONE POLE
- MANHOLE SANITARY, STORM
- SIGN
- SANITARY SEWER LAMPHOLE
- WATER VALVE
- WATER METER
- TELEPHONE BOX
- TELEPHONE RISER
- GAS METER
- GAS VALVE
- LARGE CONIFEROUS TREE
- SMALL DECIDUOUS TREE
- LARGE DECIDUOUS TREE
- Fence Line (All Types)
- Overhead Electric
- Underground Electric
- Overhead Telephone
- Underground Telephone
- Underground Cable Television
- Natural Gas Line
- Fiber Optic Cable
- Water Line
- Existing Storm Sewer
- Sanitary Sewer Line
- Proposed C.R.L.
- Existing Top of Bank
- Existing Toe of Bank
- Existing ℄ Channel

DRAWING REFERENCE LEGEND

- X/X — REFERS TO A PROFILE OR ELEVATION
- 7/8 — PROFILE NUMBER / SHEET NUMBER ON WHICH IT IS LOCATED
- 1 DETAIL DESCRIPTION — SCALE: 1"=XX'

DATUM INFORMATION

HORIZONTAL DATUM
NAD83 (2011) OKLAHOMA
SOUTH ZONE (3502)

VERTICAL DATUM
NAVD88 (GEOID 12B)

CONTACT INFORMATION

CITY OF NORMAN
PUBLIC WORKS
DEPARTMENT
225 N WEBSTER AVE
NORMAN, OK 73069
405-366-5453

NORMAN POLICE
201 WEST GRAY,
BLDG. B, NORMAN,
OK 73069

AT&T
CHRIS BURGESS
(405) 291-6569

COX
MARK BOWLING
(405) 417-4064

OG&E
800-522-6870

ONG
800-458-4251

OKIE 811 — Know what's below. Call before you dig.

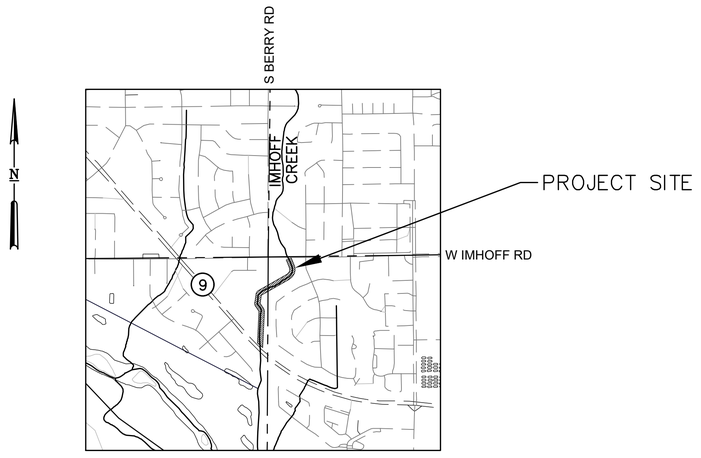
APPLICABLE SPECIFICATIONS:

CITY OF NORMAN STANDARDS SPECIFICATIONS AND CONSTRUCTION DRAWINGS

CURRENT OKLAHOMA DEPARTMENT OF TRANSPORTATION LATEST EDITION (O.D.O.T.) STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION SHALL BE USED FOR THE TECHNICAL SPECIFICATIONS. (CITY OF NORMAN STANDARD SPECIFICATIONS AND CONSTRUCTION DRAWINGS TAKE PRECEDENTS OVER O.D.O.T.)

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ) REGULATIONS SHALL APPLY FOR ALL WASTE AND SEWER RELATED WORK.

ENTIRE PROJECT IS WITHIN CORPORATE LIMITS OF CITY OF NORMAN.



DRAWING INDEX

APPLICABLE STANDARDS:

ODOT

SSS-2-1	SOLID SLAB SODDING
TESCA-0	TEMPORARY SEDIMENT CONTROLS
TSD-0	TEMPORARY SILT DIKE
SPI-5-2	STANDARD PIPE INSTALLATION
PBB-1-2	STANDARD PIPE BEDDING

APPROVED BY

CITY ENGINEER — DATE

ADVERTISEMENT DATE

Prepared By:
MESHEK & ASSOCIATES, L.L.C.

REGISTERED PROFESSIONAL ENGINEER — HARRIS C. WILSON — 19317 — OKLAHOMA

Harris C. Wilson — 3/22/24

HARRIS C. WILSON, P.E.
MESHEK & ASSOCIATES, L.L.C.

MESHEK & ASSOCIATES, L.L.C.
C.A. 1487 EXPIRES 6/30/25
1437 S. BOULDER AVE, STE. 1550
TULSA, OK 74119
(PH) 918-392-5620
(FAX) 918-392-5621

GENERAL CONSTRUCTION NOTES

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THESE DRAWINGS, DETAILS, AND SPECIFICATIONS, IN ADDITION TO THE CURRENT CITY OF NORMAN'S STANDARD SPECIFICATIONS, STANDARD DETAILS, AND STANDARD DRAWINGS AS WELL AS THE 2019 OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

2. THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS GOVERNING SAFETY, HEALTH AND SANITATION. THE CONTRACTOR SHALL PROVIDE ALL SAFEGUARDS, SAFETY DEVICES AND PROTECTIVE EQUIPMENT, AND TAKE ANY OTHER NEEDED ACTION ON AS HIS OWN RESPONSIBILITY OR AS THE ENGINEER MAY DETERMINE REASONABLY NECESSARY TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACT.

3. PAY ITEMS SHALL BE AS SPECIFIED ON THE CITY OF NORMAN OR ODOT STANDARD DRAWINGS EXCEPT AS MODIFIED BY THE CONTRACT.

4. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK IN EACH AREA. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT RESULT FROM HIS FAILURE TO LOCATE AND PRESERVE ANY AND ALL UTILITIES.

5. THE LOCATIONS OF THE UTILITIES ARE SHOWN ACCORDING TO ALL AVAILABLE INFORMATION. THE CONTRACTOR SHALL NOTIFY EACH UTILITY OWNER PRIOR TO COMMENCEMENT OF WORK TO VERIFY BOTH HORIZONTAL AND VERTICAL LOCATIONS. THE FOLLOWING IS A LIST OF UTILITY OWNERS; AT&T, OKLAHOMA ELECTRIC COOPERATIVE (OEC), OKLAHOMA NATURAL GAS (ONG), OG&E, AND THE CITY OF NORMAN. SEE TITLE SHEET FOR CONTACT INFORMATION.

6. THE CONTRACTOR SHALL GIVE THE NOTIFICATION CENTER OF OKLAHOMA ONE-CALL SYSTEM, INC. NOTICE OF ANY EXCAVATION NO SOONER THAN TEN DAYS NOR LATER THAN 48 HOURS, EXCLUDING SATURDAYS, SUNDAYS AND LEGAL HOLIDAYS, PRIOR TO THE COMMENCEMENT OF WORK. PHONE 1-811-522-6543.

7. THE CONTRACTOR SHALL PRESERVE THE INTEGRITY OF THE EXISTING STRUCTURES WITHIN THE PROJECT EXTENTS UNLESS OTHERWISE SHOWN TO BE REMOVED OR ADJUSTED.

9. ALL EXCAVATED MATERIAL NOT REQUIRED IN THE PROJECT AS FILL SHALL BECOME THE PROPERTY OF THE CONTRACTOR. WASTE MATERIAL, INCLUDING BROKEN CONCRETE, BRICKS, OLD PIPE AND OTHER DEBRIS SHALL ALSO BE REMOVED FROM THE WORK ZONE. THE CONTRACTOR SHALL DISPOSE OF ALL WASTE MATERIAL IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS. ALL COSTS FOR REMOVAL OF WASTE MATERIAL SHALL BE INCLUDED IN THE BID PRICING FOR THIS PROJECT. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE DISPOSAL OF THIS MATERIAL.

10. ALL TREES, BRUSH AND OTHER DEBRIS THAT MIGHT INTERFERE WITH THE FLOW OF WATER ARE TO BE CLEANED OUT AS NOTED IN THE PLANS. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS. ALL COST TO BE INCLUDED IN THE PRICE BID FOR THE PROJECT. TREES OUTSIDE THE FILL SLOPES AND THE TOP OF CUT SLOPES SHALL NOT BE DISTURBED EXCEPT WITH THE WRITTEN APPROVAL OF THE ENGINEER.

11. WHERE MATERIALS ARE TRANSPORTED IN THE PROSECUTION OF WORK, VEHICLES SHALL NOT BE LOADED BEYOND THE CAPACITY RECOMMENDED BY THE VEHICLE MANUFACTURER OR AS PRESCRIBED BY ANY FEDERAL, STATE OR LOCAL LAW OR REGULATION.

12. ANY DAMAGE TO THE ROADWAY PAVEMENT, CURB, DRIVEWAYS OR SIDEWALK CAUSED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED TO THE ENGINEER'S SATISFACTION AND SHALL BE ACCOMPLISHED AT THE CONTRACTOR'S SOLE EXPENSE. ALL DISTURBED ITEMS SHALL BE REPAIRED TO MATCH EXISTING MATERIALS AND PATTERNING.

13. PHYSICAL TESTING FOR QUALITY ASSURANCE SHALL BE FURNISHED BY THE CITY.

14. REFLECTORIZED SHEETING ON SIGNS AND BARRICADES SHALL BE OF A CUBIC PRISMATIC TYPE AND SHALL MEET THE SPECIFICATIONS ESTABLISHED FOR ASTM D 4956-01 TYPE IX RETROREFLECTIVE SHEETING. REFLECTORIZED SHEETING ON DRUMS AND TUBE CHANNELIZERS SHALL BE OF A HIGH-INTENSITY TYPE AND SHALL MEET THE SPECIFICATIONS ESTABLISHED FOR ASTM D 4956-01 TYPE III RETROREFLECTIVE SHEETING.

15. THE CONTRACTOR SHALL REPLACE ANY SECTION CORNERS OR OTHER PERMANENT RIGHT OF WAY MARKERS REMOVED OR DISTURBED AS A RESULT OF THE CONSTRUCTION OF THIS PROJECT. REPLACEMENT OF SECTION CORNERS OR ANY OTHER MONUMENTS SHALL BE PERFORMED BY A LICENSED LAND SURVEYOR AUTHORIZED TO PERFORM WORK IN THE STATE OF OKLAHOMA.

16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL AND MAINTENANCE OF STORMWATER DRAINAGE.

17. STRAW OR HAY BALES AS STORMWATER BEST MANAGEMENT PRACTICES ARE NO LONGER ALLOWED ON CONSTRUCTION PROJECTS.

18. THE CONTRACTOR MUST CALL 1-800-458-4251 IMMEDIATELY IF A NATURAL GAS PIPELINE IS CUT, DAMAGED, OR OTHERWISE DISTURBED.

19. THE CONTRACTOR IS RESPONSIBLE TO COMPLY WITH THE REQUIREMENTS OF THE 404 PERMIT ISSUED BY THE ACOE FOR THIS PROJECT, IDENTIFICATION NUMBER SWT-2022-73. A COPY OF THE PERMIT IS AVAILABLE FROM THE CITY.

20. **AS-BUILTS:** THE CONTRACTOR SHALL KEEP ON SITE A CURRENT SET OF THE APPROVED CONSTRUCTION WORKING DRAWINGS AT ALL TIMES. THE CONTRACTOR SHALL MARK (IN RED INK) ALL APPROVED CHANGES INCURRED FOLLOWING PUBLIC WORKS DEPARTMENT APPROVAL OF THE INITIAL DRAWINGS. THESE CHANGES MAY BE INITIATED FROM FIELD CONDITIONS OR CHANGES MADE BY THE DESIGN ENGINEER OR THE PUBLIC WORKS ENGINEER. EXCEPT FOR MINOR FIELD ADJUSTMENTS, ALL CHANGES SHALL BE REVIEWED AND AGREED TO BY THE DESIGN ENGINEER AND THE PUBLIC WORKS ENGINEER PRIOR TO FINAL APPROVAL OF THE PROJECT. THE CONTRACTOR SHALL SUBMIT THE WORKING DRAWINGS TO THE ENGINEER OF RECORD (DESIGN ENGINEER) AFTER FINAL INSPECTION OF THE PROJECT TO SERVE AS A BASIS FOR DEVELOPMENT OF FINAL AS-BUILT RECORD DRAWINGS.

21. THE CONTRACTOR SHALL MONITOR THE WEATHER AND FORECASTS. ALL EQUIPMENT SHALL BE REMOVED FROM THE CREEK PRIOR TO SEVERE WEATHER/RAIN CAUSING THE CREEK TO RISE.

SPECIAL PAY ITEM NOTES:

1. ALL COSTS FOR REMOVING SHRUBS, STUMPS, POSTS, AND ALL OTHER DEBRIS AND/OR OBSTRUCTIONS NOT COVERED BY A SEPARATE PAY ITEM ARE INCLUDED IN THE PRICE BID.

2. ITEM TO INCLUDE ALL COSTS FOR REMOVING TREES AND SHRUBS IN THE CREEK BED AND ON THE CREEK EMBANKMENTS THAT ARE TO BE STABILIZED. THIS INCLUDES TREE FALLS ACROSS THE CREEK.

3. CONSTRUCTION STAKING SHALL INCLUDE SURVEYING AND THE FURNISHING, PLACING, AND MAINTAINING OF THE CONSTRUCTION LAYOUT STAKES NECESSARY FOR THE PROPER COMPLETION AND INSPECTION OF THE ENTIRE PROJECT.

4. EROSION PROTECTION SHALL BE PLACED AS NECESSARY TO PREVENT EROSION WASH TO ADJACENT PROPERTY. EROSION PROTECTION SHALL BE REMOVED AT THE END OF THE PROJECT AS DIRECTED BY THE ENGINEER, COST TO BE INCLUDED IN THE PRICE BID. THE PRICE INCLUDES THE COST OF SEDIMENT REMOVAL PER THE STORMWATER MANAGEMENT PLAN. COST SHALL BE INCLUDED IN THE PRICE BID.

5. THE PAY ITEM FOR SOLID SLAB SODDING INCLUDES QUANTITIES FOR PLACEMENT AND COMPACTION OF SUITABLE BACKFILL AND SOD AT EXISTING GRASS AREAS WHICH MAY BE DAMAGED DURING CONSTRUCTION ACTIVITY OF THE CONTRACTOR ACCESSING THE WORK ZONE FROM IMHOFF ROAD, BACK YARDS AFFECTED BY THE CONSTRUCTION OF THE WALL, AND OTHER MISCELLANEOUS AREAS DAMAGED BY CONSTRUCTION ACTIVITIES.

6. COST OF WATERING AND FERTILIZING SHALL BE INCLUDED. FERTILIZERS SHALL BE 10-20-10 AND SHALL BE APPLIED AT THE RATE OF 1.5 LBS PER 10 SQ YDS. FERTILIZER SHALL BE APPLIED PER SECTION 230.04H OF ODOT STANDARD SPECIFICATIONS. WATERING SHALL BE APPLIED AS NECESSARY UNTIL VEGETATION IS ESTABLISHED OR UNTIL THE WORK IS ACCEPTED AS COMPLETE.

7. THE CONTRACTOR SHALL BE PAID FOR UNCLASSIFIED EXCAVATION ON THE BASIS OF PLAN QUANTITY.

8. SILT FROM DISCHARGE SHALL BE MANAGED, REMOVED & DISPOSED OF AS REQUIRED BY THE STORMWATER MANAGEMENT PLAN.

9. STREET WASH DOWN SHALL BE INCLUDED IN THE PRICE FOR UNCLASSIFIED EXCAVATION.

10. PRICE TO INCLUDE ALL COSTS, LABOR, AND MATERIALS REQUIRED FOR A COMPLETE INSTALLATION. SEE DETAIL 1 ON SHEET 26.

11. PAY ITEM REFERS TO EMBANKMENT FILL BEHIND REINFORCED FILL IN REINFORCED SOIL SLOPE (RSS) WALL AND FILL ABOVE RSS WALL TYING INTO EXISTING GROUND. SEE DETAIL 1 ON SHEET 26.

12. REFER TO SHEET 27, NOTE 2.4 FOR REINFORCED FILL MATERIAL DEFINITION.

13. NOT USED

14. PAY ITEM IS FOR DIVERSION OF WATER THROUGH CONSTRUCTION AREA. TO INCLUDE THE COST OF FLEXIBLE PIPES, INLETS, OUTLETS, AND DIVERSION DIKES. SEE ODOT ROADWAY DESIGN STANDARD DETAIL SD-0-0 (R-12).

15. PAY ITEM INCLUDES ROCK, WIRE MESH, AND ALL OTHER INCIDENTALS REQUIRED FOR CONSTRUCTION AND REMOVAL. SEE DETAIL 3 ON SHEET 26.

16. THESE PAY ITEMS ARE FOR THE ROCK TOE REVETMENT. SEE DETAIL ON SHEET 30 FOR ROCK TOE REVETMENT.

17. THESE PAY ITEMS ARE FOR THE REINFORCED SOIL SLOPE (RSS) RETAINING WALL.

18. THESE PAY ITEMS ARE FOR THE CROSS VANES. SEE DETAIL ON SHEET 30.

19. THESE PAY ITEMS ARE FOR CONSTRUCTION ACCESS AND ANY TEMPORARY WORK PLATFORMS AND SHALL INCLUDE REMOVAL AFTER CONSTRUCTION.

20. PAY ITEM TO INCLUDE TRENCH EXCAVATION, CONNECTION TO EXISTING PIPES, FITTINGS, AND ALL OTHER INCIDENTALS FOR INSTALL.

21. PAY ITEMS ARE FOR REESTABLISHING EXISTING DRAINAGE CONDUIT FROM PROPERTIES ALONG THE EAST EMBANKMENT WITHIN THE LIMITS OF THE WORK AREA.

22. PAY ITEM IS FOR THE REMOVAL OF DEBRIS IN WORK AREA.

23. PAY ITEM TO INCLUDE TRAFFIC CONTROL PLAN PROVIDED BY CONTRACTOR.

24. CONTRACTOR SHALL INCLUDE THE COST OF THE FOLLOWING ITEMS IN URBAN R/W RESTORATION:

    24.1. REPAIR OF IRRIGATION SYSTEMS
    24.2. ANY ITEMS DAMAGED DURING CONSTRUCTION. REPAIRED ITEMS SHALL BE TO THE SATISFACTION OF THE ENGINEER.
    24.3. THE CONTRACTOR SHALL INCLUDE THE COST OF FLEXAMAT SHOWN ON SHEET 14 WITH THIS PAY ITEM.

25. PAY ITEM SHALL INCLUDE ALL NECESSARY PUMPING OF POOLED WATER TO ESTABLISH WORK AREAS FOR INSTALLATION OF RSS RETAINING WALL.

26. LIVES STAKES SHALL BE INSTALLED ACCORDING TO DETAIL 5 ON SHEET 26 WITHIN THE EXTENTS OF THE ROCK TOE REVETMENT AS INDICATED ON PLANS.

27. PAY ITEM INCLUDES RIPRAP PLACEMENT ON END SECTIONS OF RSS WALL AS DESCRIBED ON THE P&P SHEETS.

PAY QUANTITIES

ITEM	DESCRIPTION	PAY ITEM NOTES	UNITS	QUANTITY
201(A)1200	CLEARING AND GRUBBING	1	AC	2.5
202(A)2200	UNCLASSIFIED EXCAVATION	7,9	CY	11,807.1
202(F)2700	EMBANKMENTS (FILL)	11	CY	11,362.7
205(A)6210	TYPE A-SALVAGED TOPSOIL	N/A	CY	246.9
220 1100	SWPPP DOCUMENTATION AND MANAGEMENT	N/A	EA	1.0
221(A)2200	TEMPORARY SLOPE DRAIN	14	LF	625.0
221(B)2300	TEMPORARY SILT FENCE	4,8	LF	210.0
221(F)2720	TEMPORARY ROCK FILTER DAM TYPE 3	15	CY	109.7
228 5100	EROSION CONTROL BLANKET (700 SERIES COIR)	16	SY	775.0
230(A)7200	SOLID SLAB SODDING	5,6	SY	1,860.0
240(A)	SELECTIVE TREE & SHRUB REMOVAL	2	AC	2.5
242 4101	STABILIZED CONSTRUCTION EXIT	N/A	EA	1.0
303(G)1510	AGGREGATE BASE TYPE D (NO. 57 STONE) (WORK PLATFORM 8" LAYER)	19	CY	485.9
303(G)1510	AGGREGATE BASE TYPE D (NO. 57 STONE) (FILL FOR RSS WALL)	17	CY	2,700.0
325 0100	SEPARATOR FABRIC (WORK PLATFORM)	19	SY	925.9
514(I)6000	SHEET PILING, DRIVEN (CROSS VANE)	18	SY	66.7
601(A)1100	TYPE I-A PLAIN RIPRAP (CROSS VANE)	18	TON	35.8
601(A)1110	TYPE I PLAIN RIPRAP (ROCK TOE REVETMENT)	16,27	TON	1,378.4
602(A)2200	GABIONS (CROSS VANE)	18	CY	4.0
612(A)3200	MANHOLES ADJUST TO GRADE	N/A	EA	1.0
613(B)5500	12" CORR. GALV. STEEL PIPE	20,21	LF	280.0
613(L)6700	12" PREFAB. CULVERT END SEC., ROUND	21	EA	14.0
613(T)7800	STANDARD BEDDING MATERIAL, CLASS C	21	CY	70.0
619(A)6210	REMOVAL OF STRUCTURES & OBSTRUCTIONS	22	CY	1,000.0
619(B)6352	REMOVAL OF FENCE	N/A	LF	1,200.0
619(B)6440	REMOVAL OF EXISTING PIPE	21	LF	100.0
619(B)6452	REMOVAL OF EXISTING RETAINING WALL	N/A	LF	80.0
624 3110	(PL) WOOD PRIVACY FENCE (6-FT STOCKADE)	N/A	LF	1,275.0
641 2100	MOBILIZATION	23	EA	1.0
642(A)3200	CONSTRUCTION STAKING LEVEL I	3	ACRE	2.5
880(J)7100	(SP) CONSTRUCTION TRAFFIC CONTROL	N/A	SD	360.0
SPECIAL	TREES - LIVE STAKING (3/4 TO 1 1/2 DIA.)	16,26	EA	1,395.0
SPECIAL	NATIVE SHRUB & GRASS PLANTING	16	SY	516.7
SPECIAL	REINFORCED SOIL SLOPE (RSS) RETAINING WALL	10,17	SF	22,407.0
SPECIAL	REINFORCED FILL (FOR RSS WALL)	12,17	CY	9,034.5
SPECIAL	URBAN R/W RESTORATION	24	ACRE	2.5
SPECIAL	PUMPING	25	DAY	35.0

PAY ITEM AND CONSTRUCTION NOTES

IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021
C.A. 1487 EXPIRES 6/30/25		
SHEET: 2 OF 30		

STORM WATER MANAGEMENT PLAN

SITE DESCRIPTION

PROJECT LIMITS: EAST AND WEST EMBANKMENT OF IMHOFF CREEK. LOCATED SOUTH OF IMHOFF ROAD AND NORTH OF HIGHWAY 9.

PROJECT DESCRIPTION: APPLICATION FOR A NATIONWIDE PERMIT AND THE DEVELOPMENT OF CONSTRUCTION PLANS TO INSTALL WIRE FORMED RETAINING WALL WITH NATURAL VEGETATED FACE TO ADDRESS BANK EROSION OF IMHOFF CREEK AND FUTURE LOSS OF PROPERTY.

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:

1. TEMPORARY EROSION CONTROL.
2. PERMANENT EROSION CONTROL.

SOIL TYPE: PORT SILT LOAM, HYDROLOGIC GROUP B

TOTAL AREA OF THE CONSTRUCTION SITE: 2.85 ACRES

ESTIMATED AREA TO BE DISTURBED: 2.5 ACRES

OFFSITE AREA TO BE DISTURBED: (FOR CONTRACTOR USE)

TOTAL IMPERVIOUS AREA PRE-CONSTRUCTION: 0 ACRES

TOTAL IMPERVIOUS AREA POST-CONSTRUCTION: 0 ACRES

POST-CONSTRUCTION RUNOFF COEFFICIENT OF THE SITE: N/A

LATITUDE & LONGITUDE OF CENTER OF PROJECT: 35°11'16.42"N , 97°27'30.27"W

PROJECT WILL DISCHARGE TO:

NAME OF RECEIVING WATERS: CANADIAN RIVER

SENSITIVE WATERS OR WATERSHEDS: YES [ ] NO [X]

303 IMPAIRED WATERS: YES [ ] NO [X]

IF YES, LIST IMPAIRMENT:

LOCATED IN A TMDL: YES [ ] NO [X]

LAKE THUNDERBIRD TMDL: YES [ ] NO [X]

MS4 ENTITY YES [X] NO [ ]

IF YES, LOCATION: NEIGHBORHOOD STORM DRAINS, CITY OF NORMAN

NOTE:
THIS SHEET SHOULD BE USED IN CONJUNCTION WITH A DRAINAGE MAP THAT ILLUSTRATES THE DRAINAGE PATTERNS/PATHWAYS AND RECEIVING WATERS FOR THIS PROJECT. THIS SHEET SHOULD ALSO BE USED WITH THE EROSION CONTROL SUMMARIES, PAY ITEMS, & NOTES.

REVISED 08 / 18 / 2017

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- [ ] TEMPORARY SEEDING
- [X] PERMANENT SODDING, SPRIGGING OR SEEDING
- [ ] VEGETATIVE MULCHING
- [X] SOIL RETENTION BLANKET
- [X] PRESERVATION OF EXISTING VEGETATION

NOTE: TEMPORARY EROSION CONTROL METHODS MUST BE USED ON ALL DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR OVER 14 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS, OR AS DIRECTED BY THE ENGINEER.

STRUCTURAL PRACTICES:

- [X] STABILIZED CONSTRUCTION EXIT
- [ ] TEMPORARY SILT FENCE
- [X] TEMPORARY SILT DIKES
- [ ] TEMPORARY FIBER LOG
- [ ] DIVERSION, INTERCEPTOR OR PERIMETER DIKES
- [ ] DIVERSION, INTERCEPTOR OR PERIMETER SWALES
- [X] ROCK FILTER DAMS
- [ ] TEMPORARY SLOPE DRAIN
- [ ] PAVED DITCH W/ DITCH LINER PROTECTION
- [ ] TEMPORARY DIVERSION CHANNELS
- [ ] TEMPORARY SEDIMENT BASINS
- [ ] TEMPORARY SEDIMENT TRAPS
- [X] TEMPORARY SEDIMENT FILTERS
- [X] TEMPORARY SEDIMENT REMOVAL
- [X] RIP RAP
- [ ] INLET SEDIMENT FILTER
- [ ] TEMPORARY BRUSH SEDIMENT BARRIERS
- [ ] SANDBAG BERMS
- [X] TEMPORARY STREAM CROSSINGS

OFFSITE VEHICLE TRACKING:

- [X] HAUL ROADS DAMPENED FOR DUST CONTROL
- [X] LOADED HAUL TRUCKS TO BE COVERED WITH TARPAULIN
- [X] EXCESS DIRT ON ROAD REMOVED DAILY

NOTES:

THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING:

MAINTENANCE AND INSPECTION:
ALL EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED IN GOOD WORKING ORDER FROM THE BEGINNING OF CONSTRUCTION UNTIL AN ACCEPTABLE VEGETATIVE COVER IS ESTABLISHED. INSPECTION BY THE CONTRACTOR AND ANY NECESSARY REPAIRS SHALL BE PERFORMED ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCH AS RECORDED BY A NON-FREEZING RAIN GAUGE TO BE LOCATED ON SITE. POTENTIALLY ERODIBLE AREAS, DRAINAGEWAYS, MATERIAL STORAGE, STRUCTURAL DEVICES, CONSTRUCTION ENTRANCES AND EXITS ALONG WITH EROSION AND SEDIMENT CONTROL LOCATIONS ARE EXAMPLES OF SITES THAT NEED TO BE INSPECTED.

WASTE MATERIALS:
PROPER MANAGEMENT AND DISPOSAL OF CONSTRUCTION WASTE MATERIAL IS REQUIRED BY THE CONTRACTOR. MATERIALS INCLUDE STOCKPILES, SURPLUS, DEBRIS AND ALL OTHER BY-PRODUCTS FROM THE CONSTRUCTION PROCESS. PRACTICES INCLUDE DISPOSAL, PROPER MATERIALS HANDLING, SPILL PREVENTION AND CLEANUP MEASURES. CONTROLS AND PRACTICES SHALL MEET THE REQUIREMENTS OF ALL FEDERAL, STATE AND LOCAL AGENCIES.

HAZARDOUS MATERIALS:
PROPER MANAGEMENT AND DISPOSAL OF HAZARDOUS WASTE MATERIALS IS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING MANUFACTURER'S RECOMMENDATIONS, STATE AND FEDERAL REGULATIONS TO ENSURE CORRECT HANDLING, DISPOSAL, SPILL PREVENTION AND CLEANUP MEASURES. EXAMPLES INCLUDE BUT ARE NOT LIMITED TO: PAINTS, ACIDS, CLEANING SOLVENTS, CHEMICAL ADDITIVES, CONCRETE CURING COMPOUNDS AND CONTAMINATED SOILS.

GENERAL NOTES:
THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP), THE NOTICE OF INTENT, & THE NOTICE OF TERMINATION FOR THIS PROJECT. THE SWPPP IS REQUIRED TO COMPLY WITH THE OKLAHOMA POLLUTION DISCHARGE ELIMINATION SYSTEM (OPDES) REGULATIONS. THIS PLAN IS INITIATED PRIOR TO MOBILIZATION, CONFIRMED IN THE PRE-WORK MEETINGS AND AVAILABLE ON THE JOB SITE ALONG WITH COPIES OF THE NOTICE OF INTENT (NOI) FORM AND PERMIT CERTIFICATE THAT HAVE BEEN FILED WITH THE OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ). THE PLAN MUST BE KEPT CURRENT WITH UP-TO-DATE AMENDMENTS DURING THE PROGRESSION OF THE PROJECT. ALL CONTRACTOR OFF-SITE OPERATIONS ASSOCIATED WITHTHE PROJECT MUST BE DOCUMENTED IN THE SWPPP, I.E., BORROW PITS, WORK ROADS, DISPOSAL SITES, ASPHALT/CONCRETE PLANTS, ETC. THE BASIC GOAL OF STORM WATER MANAGEMENT IS TO IMPROVE WATER QUALITY BY REDUCING POLLUTANTS IN STORM WATER DISCHARGES. RUNOFF FROM CONSTRUCTION SITES HAS A POTENTIAL FOR POLLUTION DUE TO EXPOSED SOILS AND THE PRESENCE OF HAZARDOUS MATERIALS USED IN THE CONSTRUCTION PROCESS. THE PREVENTION OF SOIL EROSION, CONTAINMENT OF HAZARDOUS MATERIALS AND/OR THE INTERCEPTION OF THESE POLLUTANTS BEFORE LEAVING THE CONSTRUCTION SITE ARE THE BEST PRACTICES FOR CONTROLLING STORM WATER POLLUTION.

THE FOLLOWING SECTIONS OF THE 2009 ODOT STANDARD SPECIFICATIONS SHOULD BE NOTED:

103.05 BONDING REQUIREMENTS
104.10 FINAL CLEANING UP
104.12 CONTRACTOR'S RESPONSIBILITY FOR WORK
104.13 ENVIRONMENTAL PROTECTION
106.08 STORAGE AND HANDLING OF MATERIAL
107.01 LAWS, RULES AND REGULATIONS TO BE OBSERVED
107.20 STORM WATER MANAGEMENT
220 MANAGEMENT OF EROSION, SEDIMENTATION AND STORM WATER POLLUTION PREVENTION AND CONTROL
221 TEMPORARY SEDIMENT CONTROL

IN ADDITION:
"ODEQ GENERAL PERMIT (OKR10) FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA."
ODEQ, WATER QUALITY DIVISION, SEPTEMBER 13, 2017.

SWMP

IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

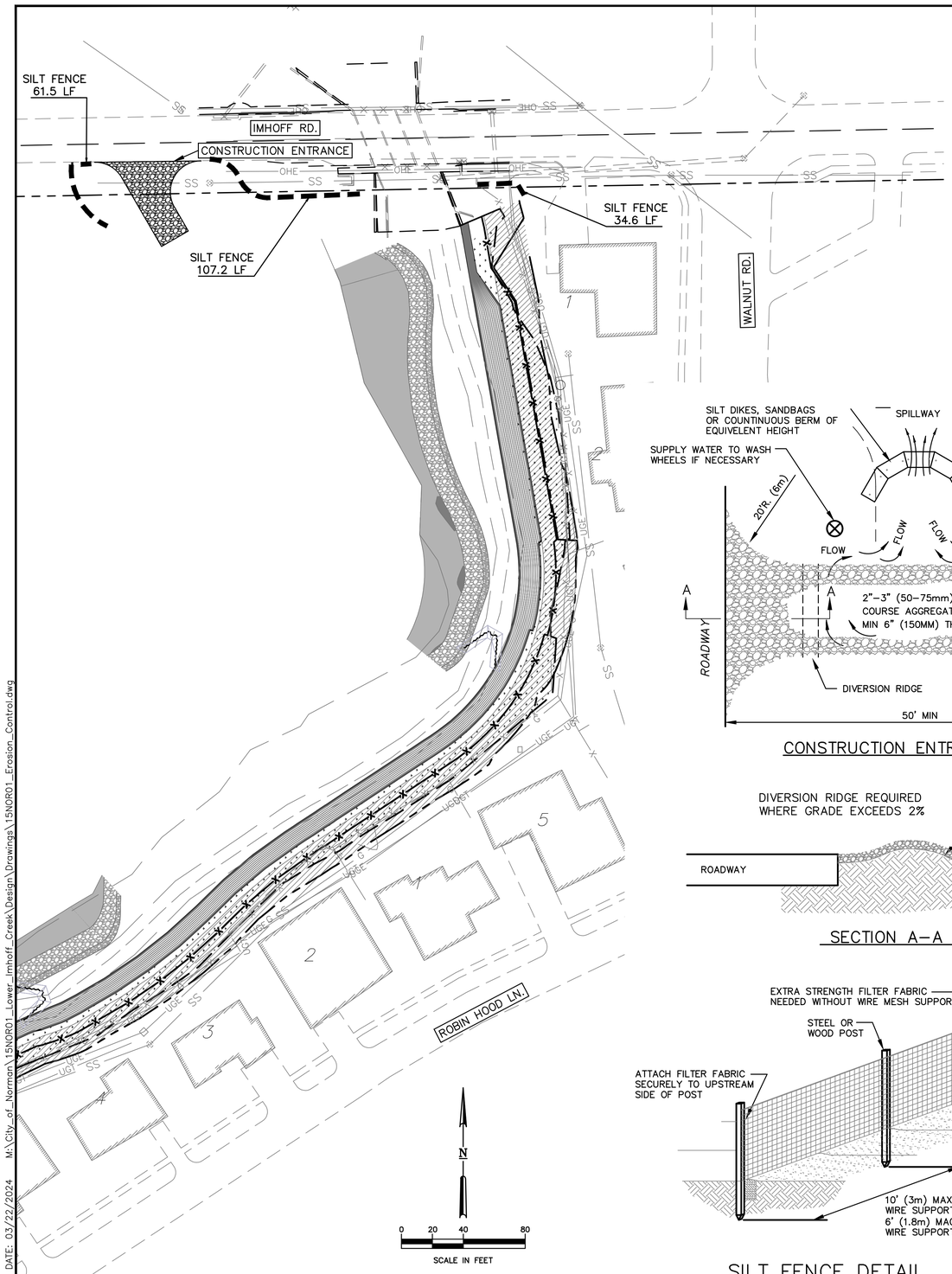
REVISION	BY	DATE

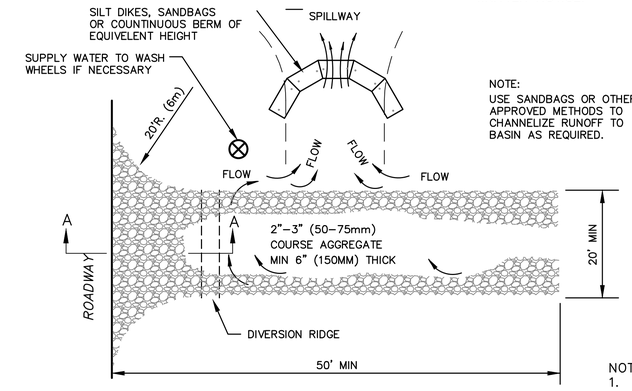
DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021

C.A. 1487 EXPIRES 6/30/25

SHEET: 3 OF 30

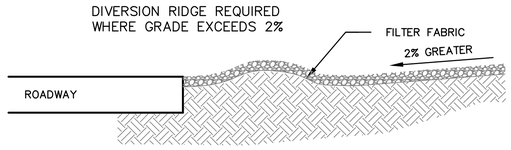
PRINT DATE: 3/22/24 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_SWMP.dwg



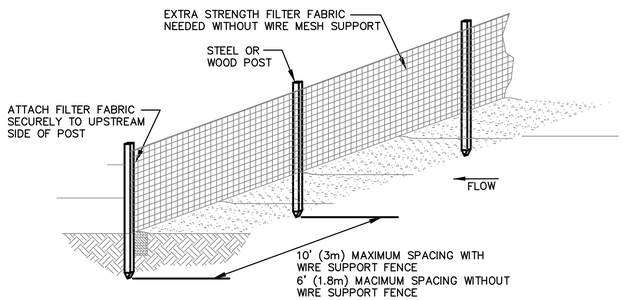


NOTE:
USE SANDBAGS OR OTHER APPROVED METHODS TO CHANNELIZE RUNOFF TO BASIN AS REQUIRED.

CONSTRUCTION ENTRANCE DETAIL



SECTION A–A



SILT FENCE DETAIL

EROSION CONTROL NOTES

1. STABILIZATION MEASURES MUST BE COMPLETED WITHIN 7 DAYS.
2. ALL GRADING AND EROSION CONTROL SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT CITY OF OKC STANDARD SPECIFICATIONS.
3. ALL EROSION CONTROL CONSTRUCTION SHALL BE INSPECTED BY THE CONTRACTOR OR CONTRACTORS REPRESENTATIVE.
4. EROSION CONTROL SHALL START WITH INITIAL CONSTRUCTION AND BE PRACTICED THROUGHOUT THE PROJECT.
5. SEDIMENT CONTROL DEVICES SUCH AS FIBER ROLLS, TRIANGULAR SILT DIKES, AND SILT FENCES SHALL BE CONSTRUCTED ADJACENT TO ALL DRAINAGE–WAYS, AND IN ALL AREAS THAT WILL ERODE INTO THE STORM SEWER SYSTEM.
6. WHERE CONSTRUCTION ACTIVITY TEMPORARILY CEASES FOR 14 DAYS, THE DISTURBED AREAS SHALL BE STABILIZED WITH SEED AND MULCH.
7. THE CONTRACTOR SHALL RE–SEED ALL AREAS DISTURBED DURING CONSTRUCTION AND CONTRACTOR SHALL BE RESPONSIBLE FOR SEEDED AREAS UNTIL GROWTH IS ESTABLISHED TO A UNIFORM HEIGHT OF TWO (2) INCHES.
8. THERE ARE NO OFFSITE MATERIAL, WASTE, BORROW OR EQUIPMENT STORAGE AREAS.
9. THE STORM WATER PREVENTION POLLUTION PLAN SHALL BE UPDATED AS NECESSARY TO REMAIN CONSISTENT WITH ANY CHANGES APPLICABLE TO PROTECT SURFACE WATER RESOURCES IN SEDIMENT EROSION SITE PLANS OR SITE PLANS OR SITE PERMITS OR STORM WATER MANAGEMENT SITE PLANS OR SITE PERMITS APPROVED BY STATE OR LOCAL OFFICIALS FOR WHICH PERMITEE RECEIVES WRITTEN NOTICE.

NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT–OF–WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF–WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABLIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

LEGEND

SOLID SLAB SOD

TEMPORARY SILT FENCE

SOIL STABILIZATION PRACTICES

1. ALL EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED IN GOOD WORKING ORDER FROM THE BEGINNING OF CONSTRUCTION UNTIL AN ACCEPTABLE VEGETATIVE COVER IS ESTABLISHED.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF ALL EROSION CONTROL DEVICES DAMAGED DUE TO CONSTRUCTION OR INCLEMENT WEATHER CONDITIONS.
3. A COPY OF THE EROSION CONTROL SITE PLAN MUST BE ON SITE AT ALL TIMES AND MADE AVAILABLE TO THE INSPECTOR UPON REQUEST.
4. PROPER MANAGEMENT AND DISPOSAL OF CONSTRUCTION WASTE MATERIAL IS REQUIRED.

SOD AND SEED

1. THE CONTRACTOR SHALL ESTABLISH A VEGETATIVE COVER OVER ALL SOIL SURFACES DISTURBED DURING CONSTRUCTION.THE CONTRACTOR SHALL BE RESPONSIBLE FOR ASSURING ALL VEGETATION COVERS ARE WELL ESTABLISHED PRIOR TO FINAL COMPLETION OF PROJECT.
2. THE CONTRACTOR SHALL PROVIDE A 3' WIDE SOD STRIP AT THE EDGE OF ALL NEW PAVEMENT SURFACES AND AT THE TOP OF THE GABION WALL IF NOT DEPICTED OTHERWISE ON PLANS.

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

EROSION CONTROL

IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392–5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594–0127

REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021
C.A. 1487 EXPIRES 6/30/25		
SHEET: 4 OF 30		

PRINT DATE: 03/22/2024 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_Erosion_Control.dwg

OWNER:
CEREBRAL PROFESSIONAL SYSTEMS
BK 2688 PG 592

TURN BACK RSS WALL BASKET FACE PER DETAIL 5 ON SHEET 28

TEMPORARY ROCK FILTER DAM SEE DETAIL 3 ON SHEET 26

SEE SHEET 13 FOR C.R.L. DATA

20'x20' TYPE I PLAIN RIPRAP (3' DEPTH) TO TIE INTO EDGE OF RSS WALL

33' STATUTORY R/W

EAST LINE SEC 12

WEST LINE SECTION 7

33' STATUTORY R/W

SCALE IN FEET 0 10 20 40

STA. 19+80

STA. 23+20

GRADING EDGE

SSMH E4
TR=1106.66
FL=1100.31 8" CLAY S
FL=1100.31 8" CLAY NE

50' U/E & D/E

WOODEN FENCE

CHAIN LINK FENCE

EX. SHED

LEGEND

- RSS WALL FACE
- RIPRAP/ROCK TOE REVETMENT SEE DETAIL SHEET 30
- PROPOSED SOD
- TEMPORARY CONSTRUCTION EASEMENT
- TOB — EXISTING TOP OF BANK
- EX–TOE — EXISTING TOE OF BANK
- EX CL CHANNEL
- CRL CHANNEL
- PROPOSED FENCE
- X–X — EXISTING FENCE
- G — EXISTING GAS (APPROX.)
- UGT — EX UNDRGND TELE (APPROX.)
- UGE — EX UNDRGND ELEC (APPROX.)
- SS — EX SAN. SEWER (APPROX.)

E1 SOD AREA

E2 SILT FENCE

E3 ROCK FILTER DAM SEE DETAIL 3 – SHEET 26

E4 PROTECT DURING CONSTRUCTION

CAUTION
SANITARY SEWER
GAS
U/T
U/E

TEMPORARY ROCK FILTER DAM SEE DETAIL 3 ON SHEET 26

TYPE I PLAIN RIPRAP (3' DEPTH) TO TIE INTO EDGE OF RSS WALL. PLACE RIPRAP FROM EXISTING 30" RCP TO EDGE OF RSS WALL, 20' TOP TO TOE.

TURN BACK RSS WALL BASKET FACE PER DETAIL 5 ON SHEET 28

TURN BACK RSS WALL BASKET FACE PER DETAIL 5 ON SHEET 28

20'x20' TYPE I PLAIN RIPRAP (3' DEPTH) TO TIE INTO EDGE OF RSS WALL

EAST LINE SEC 12

SECTION LINE

GRADING EDGE

33' U/E & D/E

25' B/L

WEST LINE SECTION 7

33' STATUTORY R/W

WOODEN FENCE

CHAIN LINK FENCE

EAST LINE SEC 12

SECTION LINE

EX. SHED

E4 GRATE INLET
TG=1102.15
FL=1094.55 30" RCP W
FL=1094.55 30" RCP E

E4 GRATE INLET
TG=1102.85
FL=1095.35 30" RCP W
FL=1095.35 30" RCP E

E4 30" RCP E
FL=1093.48

SCALE IN FEET 0 10 20 40

STA. 15+00

STA. 19+80

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

EROSION CONTROL PLAN 2

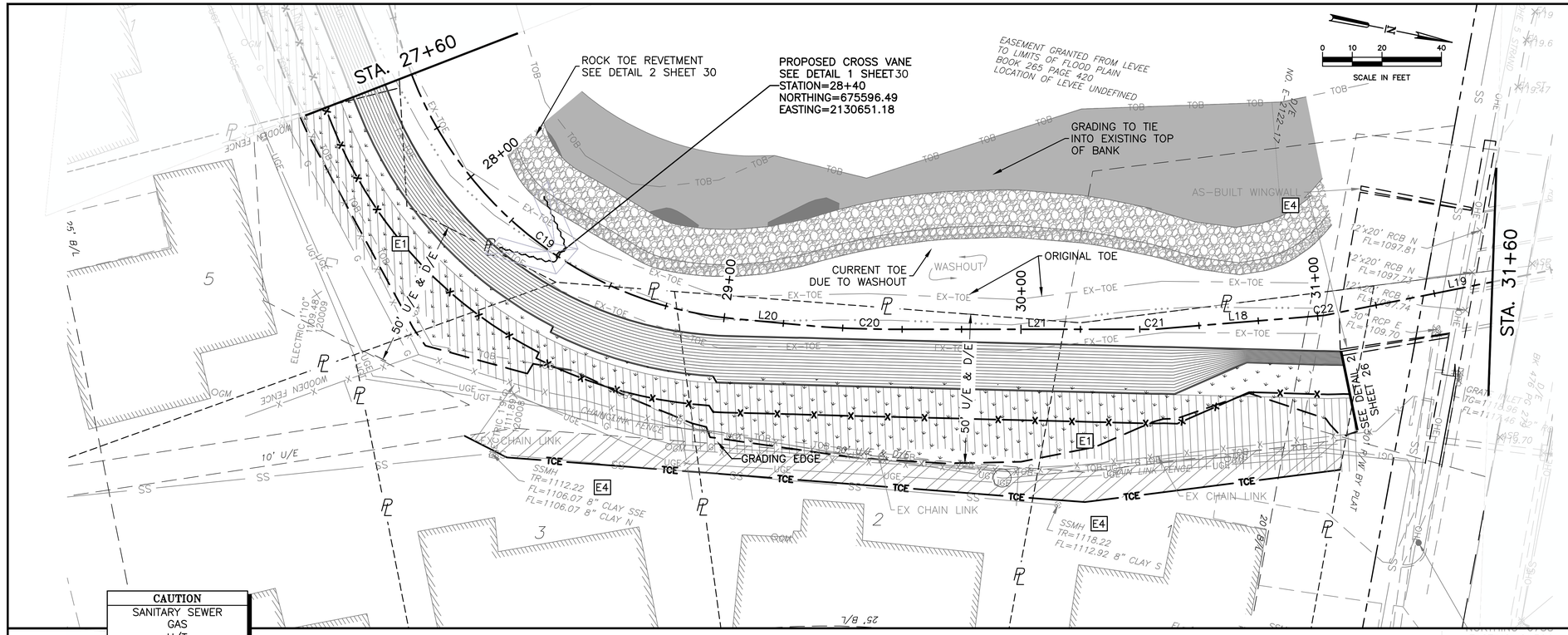
IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

REVISION	BY	DATE		
			DRAWN	CGH 12/2023
			DESIGNED	HCW 12/2023
			SURVEY	MR 7/2021
			C.A. 1487 EXPIRES 6/30/25	
			SHEET:	5 OF 30

PRINT DATE: 03/22/2024 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_EROSION.dwg



LEGEND

- RSS WALL FACE
- RIPRAP/ROCK TOE REVETMENT SEE DETAIL SHEET 30
- PROPOSED SOD
- TCE — TEMPORARY CONSTRUCTION EASEMENT
- TOB — EXISTING TOP OF BANK
- EX–TOE — EXISTING TOE OF BANK
- EX CL CHANNEL
- CRL CHANNEL
- PROPOSED FENCE
- X—X — EXISTING FENCE
- G — EXISTING GAS (APPROX.)
- UGT — EX UNDRGND TELE (APPROX.)
- UGE — EX UNDRGND ELEC (APPROX.)
- SS — EX SAN. SEWER (APPROX.)

E1 SOD AREA

E2 SILT FENCE

E3 ROCK FILTER DAM
SEE DETAIL 3 – SHEET 26

E4 PROTECT DURING CONSTRUCTION

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

EROSION CONTROL PLAN 3

IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

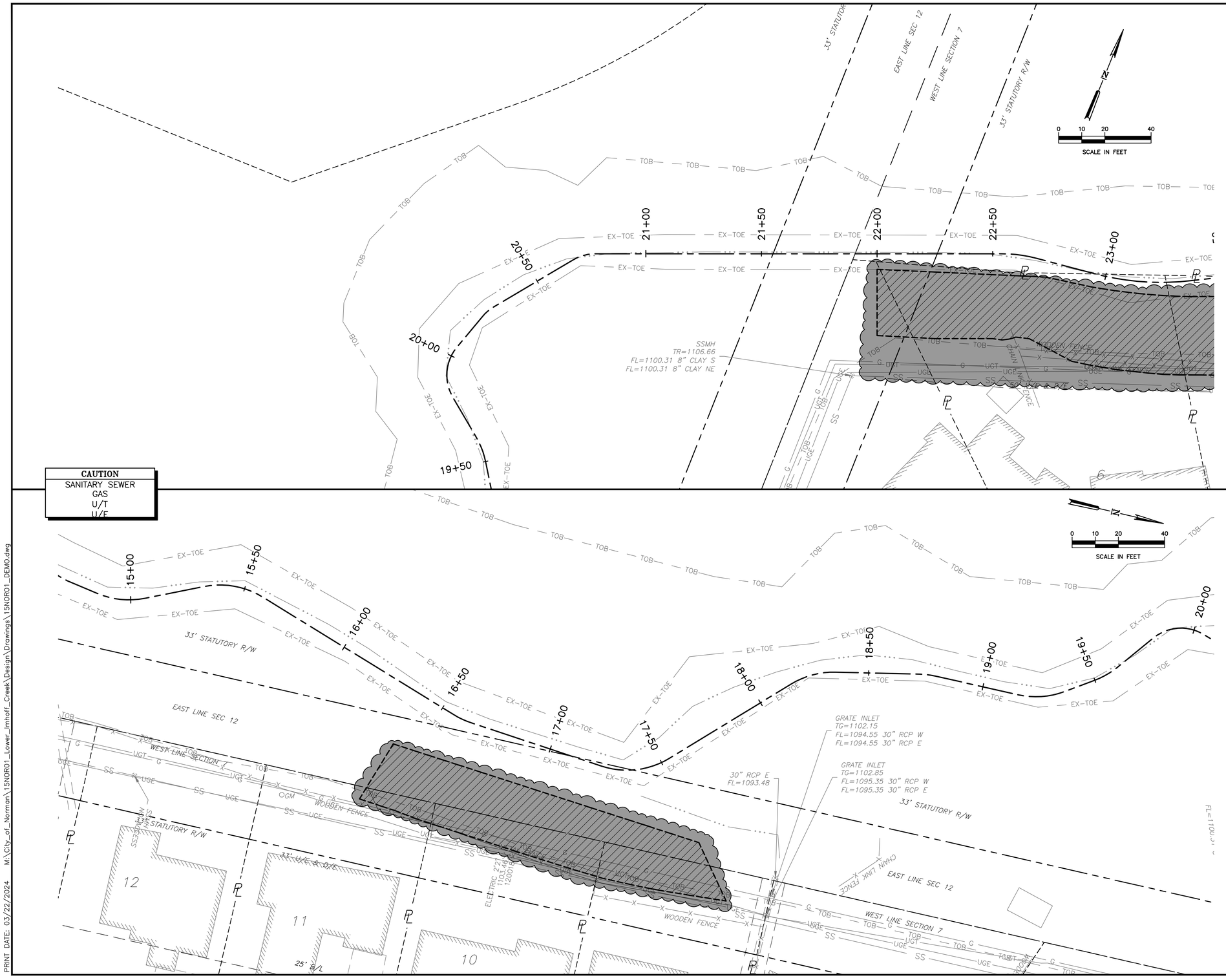
REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021

C.A. 1487 EXPIRES 6/30/25

SHEET: 6 OF 30

PRINT DATE: 03/22/2024 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_EROSION.dwg



CAUTION
SANITARY SEWER
GAS
U/T
U/E

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

DEMOLITION PLAN 1

IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

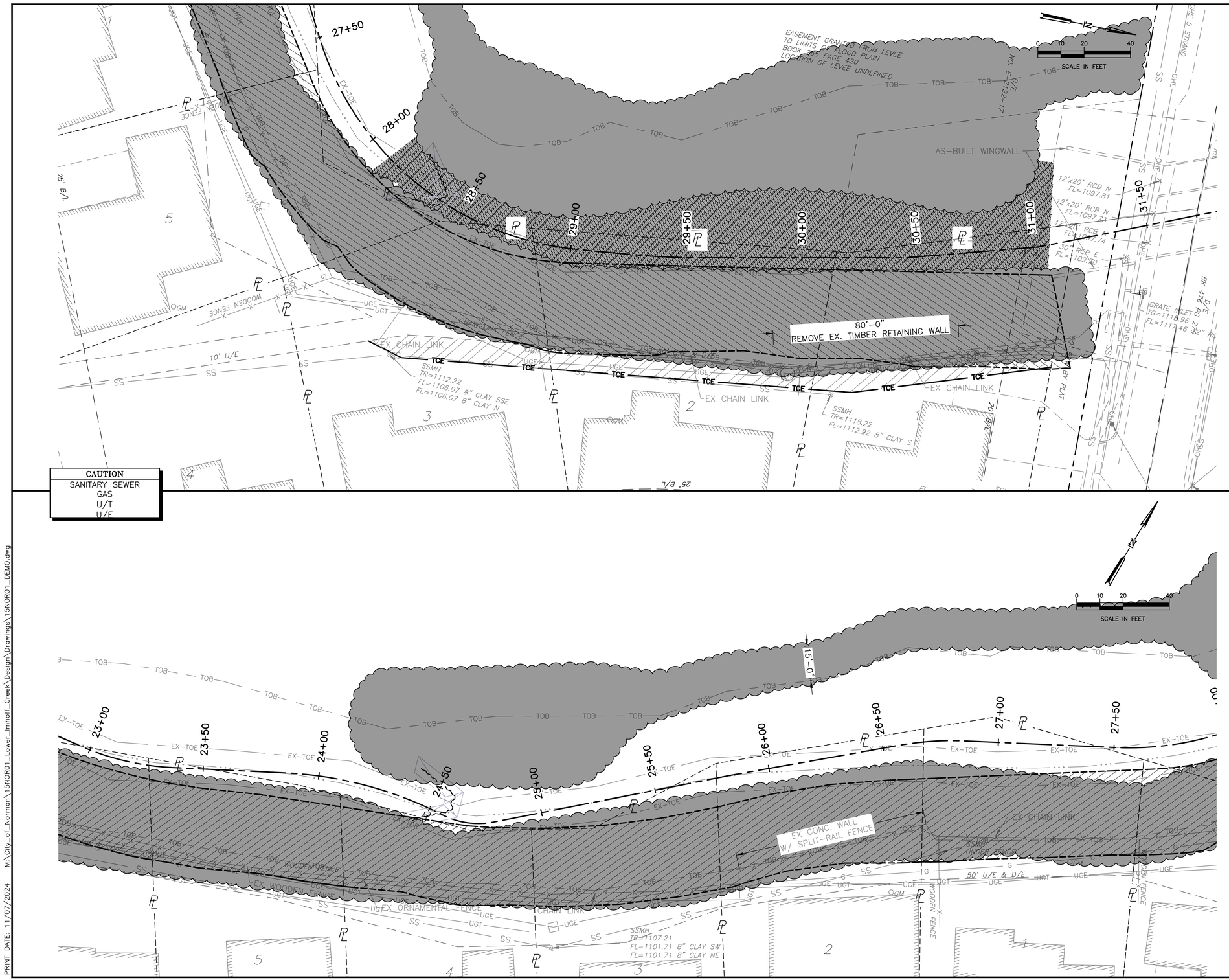
REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021

C.A. 1487 EXPIRES 6/30/25

SHEET: 7 OF 30

PRINT DATE: 03/22/2024 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_DEMO.dwg



PRINT DATE: 11/07/2024 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_DEMO.dwg

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

DEMOLITION PLAN 2

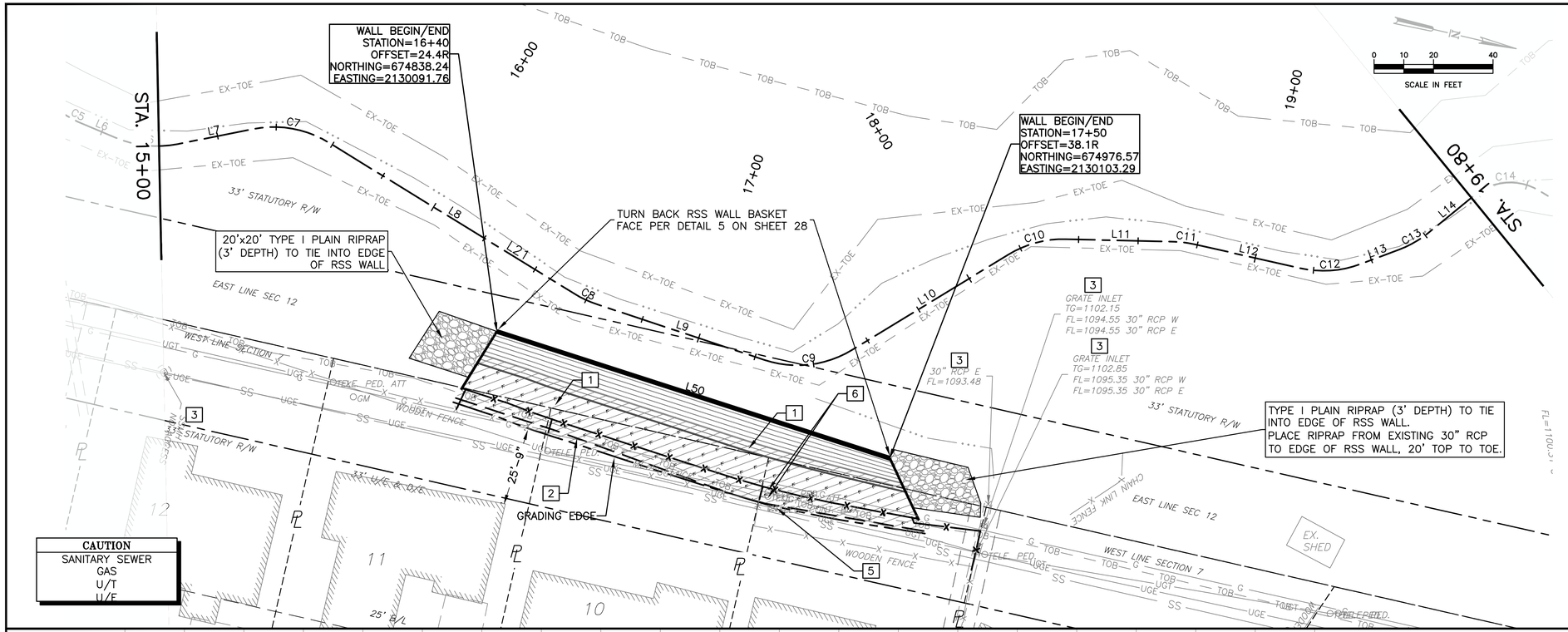
IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021
C.A. 1487 EXPIRES 6/30/25		
SHEET:	8 OF	30



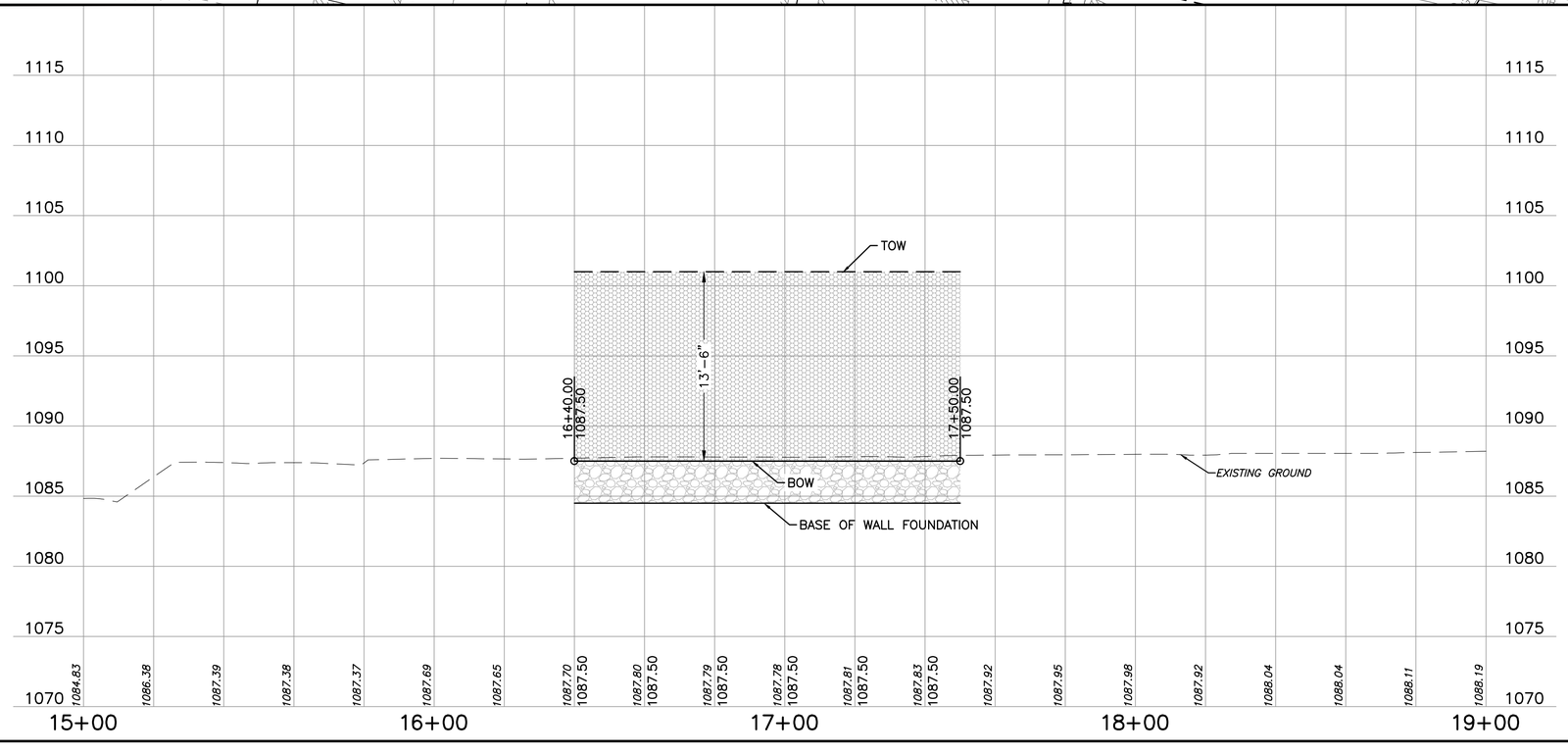
CAUTION
SANITARY SEWER
GAS
U/T
U/E

LEGEND

- RSS WALL FACE
- ROCK TOE REVETMENT SEE DETAIL 2 SHEET 30
- EXCAVATION AREA
- TCE — TEMPORARY CONSTRUCTION EASEMENT
- TOB — EXISTING TOP OF BANK
- EX-TOE — EXISTING TOE OF BANK
- EX CL CHANNEL
- CRL CHANNEL
- PROPOSED FENCE
- EXISTING FENCE
- G — EXISTING GAS (APPROX.)
- UGT — EX UNDRGND TELE (APPROX.)
- UGE — EX UNDRGND ELEC (APPROX.)
- SS — EX SAN. SEWER (APPROX.)

1. REPLACE EXISTING FENCE (6' STOCKADE)
2. RELOCATE GAS. LOCATE BY POTHOLING
3. PROTECT DURING CONSTRUCTION
4. REMOVE TREE
5. RESET U/E BOX. (BY OTHERS)
6. RESET U/T PEDESTAL. (BY OTHERS)
7. RELOCATE U/E. (BY OTHERS)
8. RELOCATE U/T. (BY OTHERS)
9. RESET SS MH
10. SHEET PILE CROSS VANE SEE DETAIL 1 SHEET 30

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



Wall Toe Line and Curve Table

Line #/Curve #	Length	Bearing/Chord	Radius	Start Coord.
L60	75.61	N70° 39' 35.17"E		N: 675266.98 E: 2130119.66
L61	96.13	N67° 31' 06.32"E		N: 675321.05 E: 2130282.11
C61	117.68	Chord Length: 117.12' Chord Direction: N53° 59' 50"E	346.97	N: 675357.81 E: 2130370.93
C62	64.37	Chord Length: 64.24' Chord Direction: N50° 25' 38"E	300.00	N: 675426.65 E: 2130465.68
L62	109.40	N56° 34' 25.92"E		N: 675467.58 E: 2130515.20
C63	152.47	Chord Length: 143.27' Chord Direction: N24° 50' 55"E	125.56	N: 675527.85 E: 2130606.51
L63	206.45	N10° 01' 04.28"W		N: 675657.86 E: 2130666.71
L50	138.84	N4° 45' 31.03"E		N: 674838.25 E: 2130091.82

RSS WALL P&P 2

IMHOFF CREEK BANK STABILIZATION

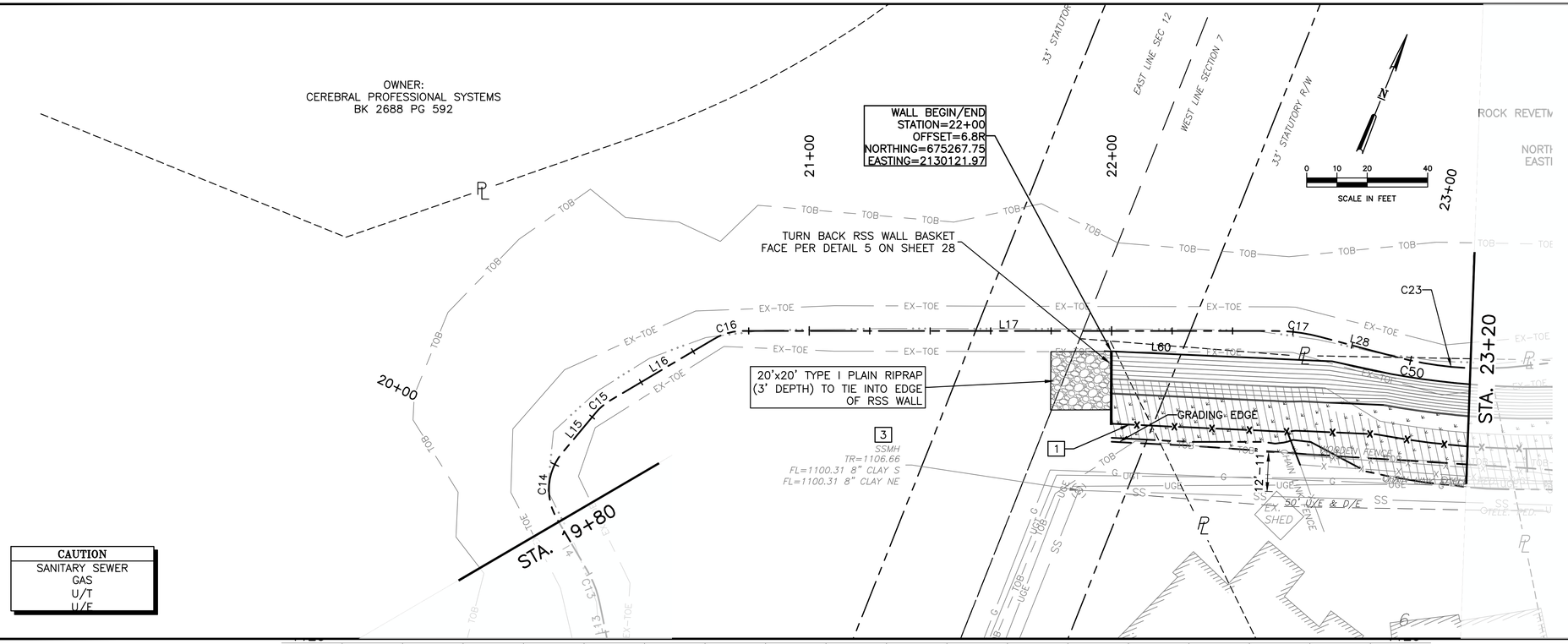
CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021
C.A. 1487 EXPIRES 6/30/25		
SHEET: 9 OF 30		

PRINT DATE: 03/22/2024 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_PnP.dwg



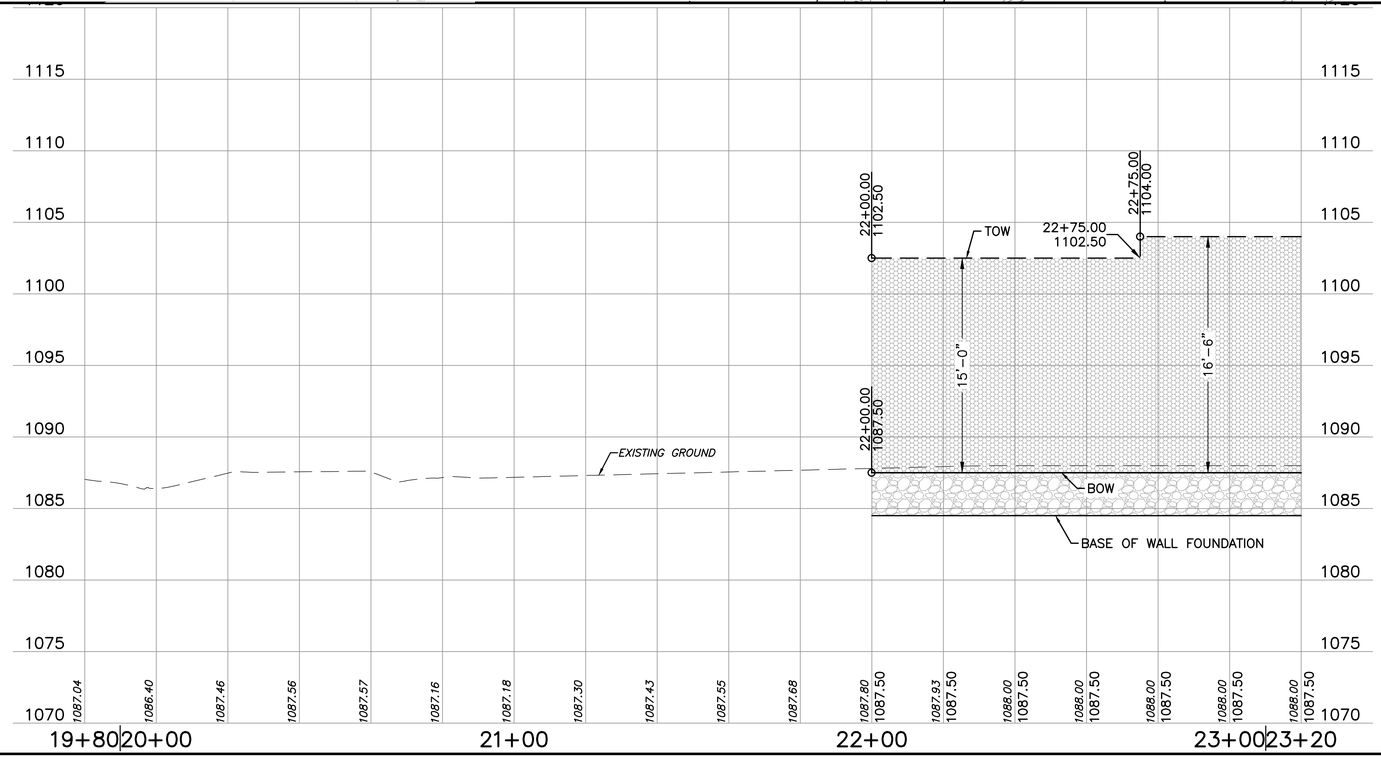
LEGEND

- RSS WALL FACE
- ROCK TOE REVETMENT SEE DETAIL 2 SHEET 30
- EXCAVATION AREA
- TEMPORARY CONSTRUCTION EASEMENT (TCE)
- TOB — EXISTING TOP OF BANK
- EX–TOE — EXISTING TOE OF BANK
- EX CL CHANNEL
- CRL CHANNEL
- PROPOSED FENCE
- X — X — EXISTING FENCE
- G — EXISTING GAS (APPROX.)
- UGT — EX UNDRGND TELE (APPROX.)
- UGE — EX UNDRGND ELEC (APPROX.)
- SS — EX SAN. SEWER (APPROX.)

1. REPLACE EXISTING FENCE (6' STOCKADE)
2. RELOCATE GAS. LOCATE BY POTHOLING
3. PROTECT DURING CONSTRUCTION
4. REMOVE TREE
5. RESET U/E BOX. (BY OTHERS)
6. RESET U/T PEDESTAL. (BY OTHERS)
7. RELOCATE U/E. (BY OTHERS)
8. RELOCATE U/T. (BY OTHERS)
9. RESET SS MH
10. SHEET PILE CROSS VANE SEE DETAIL 1 SHEET 30

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

CAUTION
SANITARY SEWER
GAS
U/T
U/E



Wall Toe Line and Curve Table

Line #/Curve #	Length	Bearing/Chord	Radius	Start Coord.
L60	75.61	N70° 39' 35.17"E		N: 675266.98 E: 2130119.66
L61	96.13	N67° 31' 06.32"E		N: 675321.05 E: 2130282.11
C61	117.68	Chord Length: 117.12' Chord Direction: N53° 59' 50"E	346.97	N: 675357.81 E: 2130370.93
C62	64.37	Chord Length: 64.24' Chord Direction: N50° 25' 38"E	300.00	N: 675426.65 E: 2130465.68
L62	109.40	N56° 34' 25.92"E		N: 675467.58 E: 2130515.20
C63	152.47	Chord Length: 143.27' Chord Direction: N24° 50' 55"E	125.56	N: 675527.85 E: 2130606.51
L63	206.45	N10° 01' 04.28"W		N: 675657.86 E: 2130666.71
L50	138.84	N4° 45' 31.03"E		N: 674838.25 E: 2130091.82

RSS WALL P&P 2

IMHOFF CREEK BANK STABILIZATION

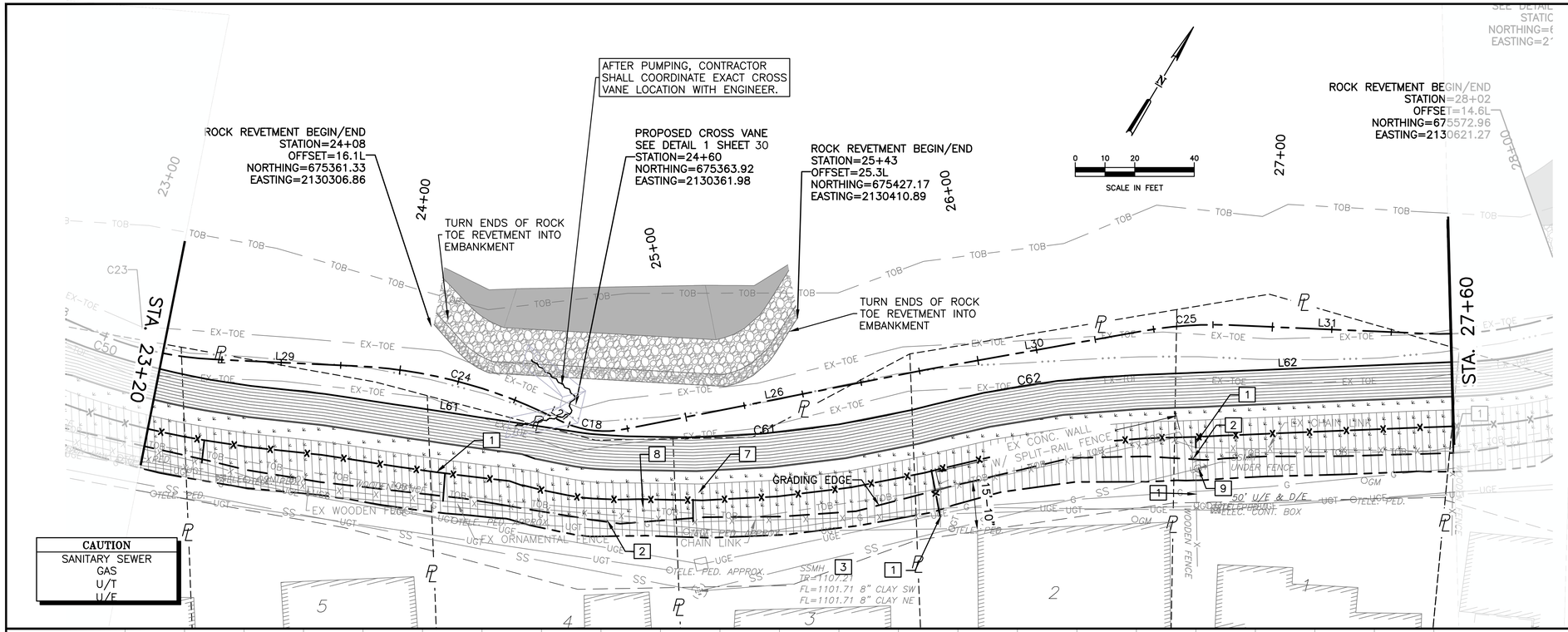
CITY OF NORMAN

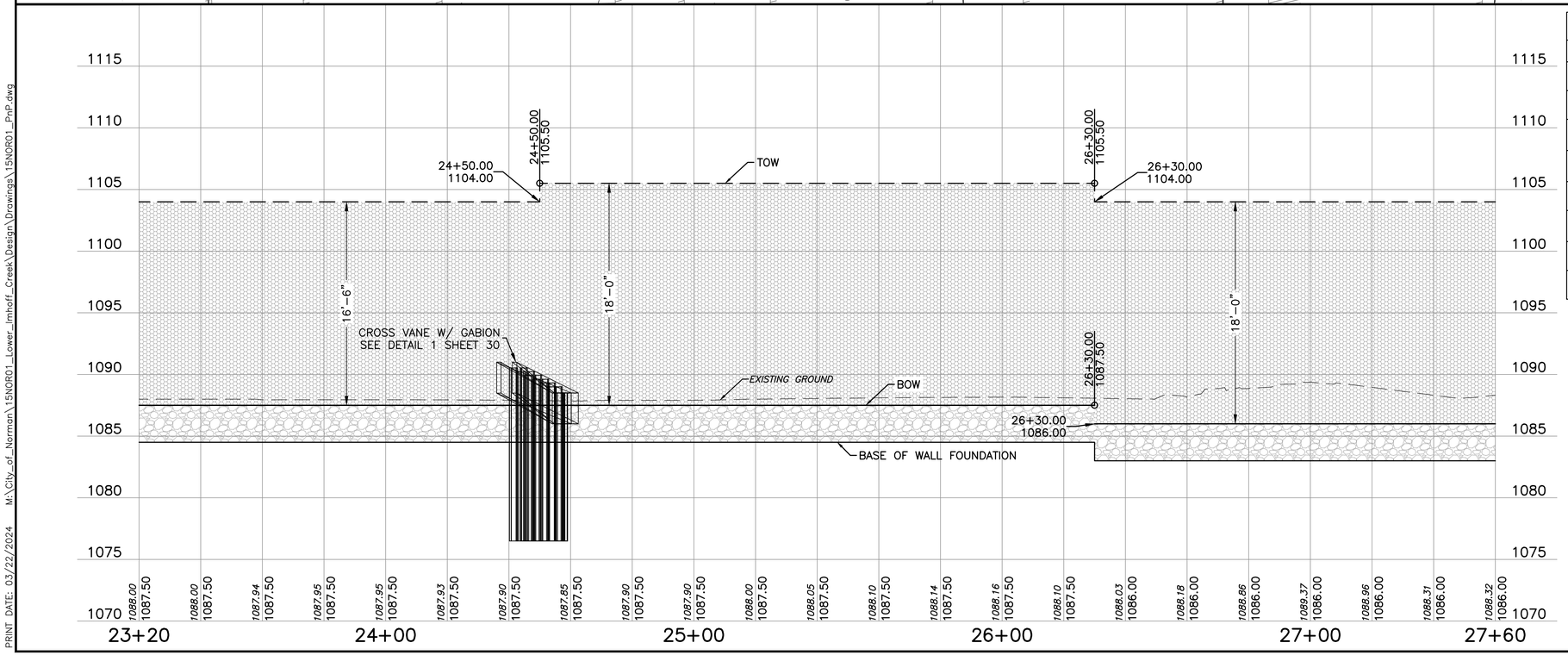
PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021
C.A. 1487 EXPIRES 6/30/25		
SHEET: 10 OF 30		

PRINT DATE: 03/22/2024 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_PnP.dwg





Wall Toe Line and Curve Table				
Line #/Curve #	Length	Bearing/Chord	Radius	Start Coord.
L60	75.61	N70° 39' 35.17"E		N: 675266.98 E: 2130119.66
L61	96.13	N67° 31' 06.32"E		N: 675321.05 E: 2130282.11
C61	117.68	Chord Length: 117.12' Chord Direction: N53° 59' 50"E	346.97	N: 675357.81 E: 2130370.93
C62	64.37	Chord Length: 64.24' Chord Direction: N50° 25' 38"E	300.00	N: 675426.65 E: 2130465.68
L62	109.40	N56° 34' 25.92"E		N: 675467.58 E: 2130515.20
C63	152.47	Chord Length: 143.27' Chord Direction: N24° 50' 55"E	125.56	N: 675527.85 E: 2130606.51
L63	206.45	N10° 01' 04.28"W		N: 675657.86 E: 2130666.71
L50	138.84	N4° 45' 31.03"E		N: 674838.25 E: 2130091.82

RSS WALL P&P 3

IMHOFF CREEK BANK STABILIZATION

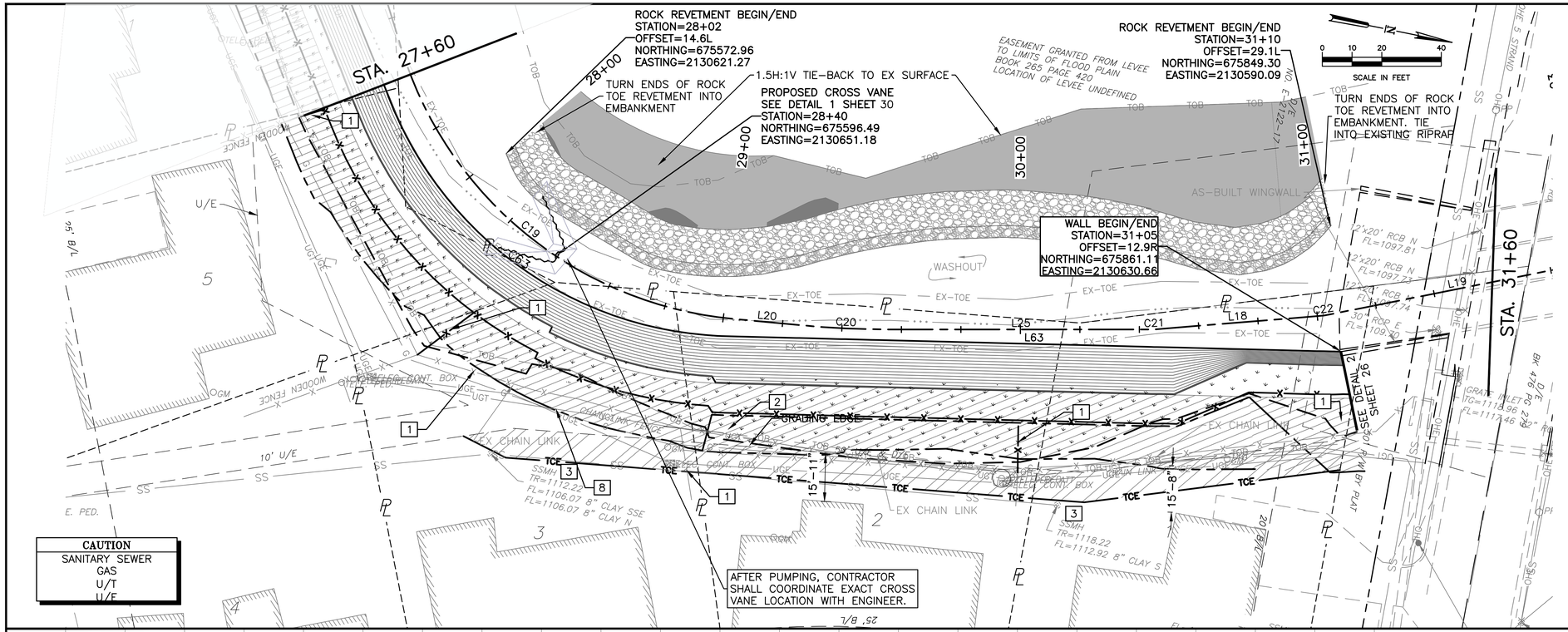
CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021
C.A. 1487 EXPIRES 6/30/25		
SHEET:	11 OF 30	

PRINT DATE: 03/22/2024 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_PnP.dwg

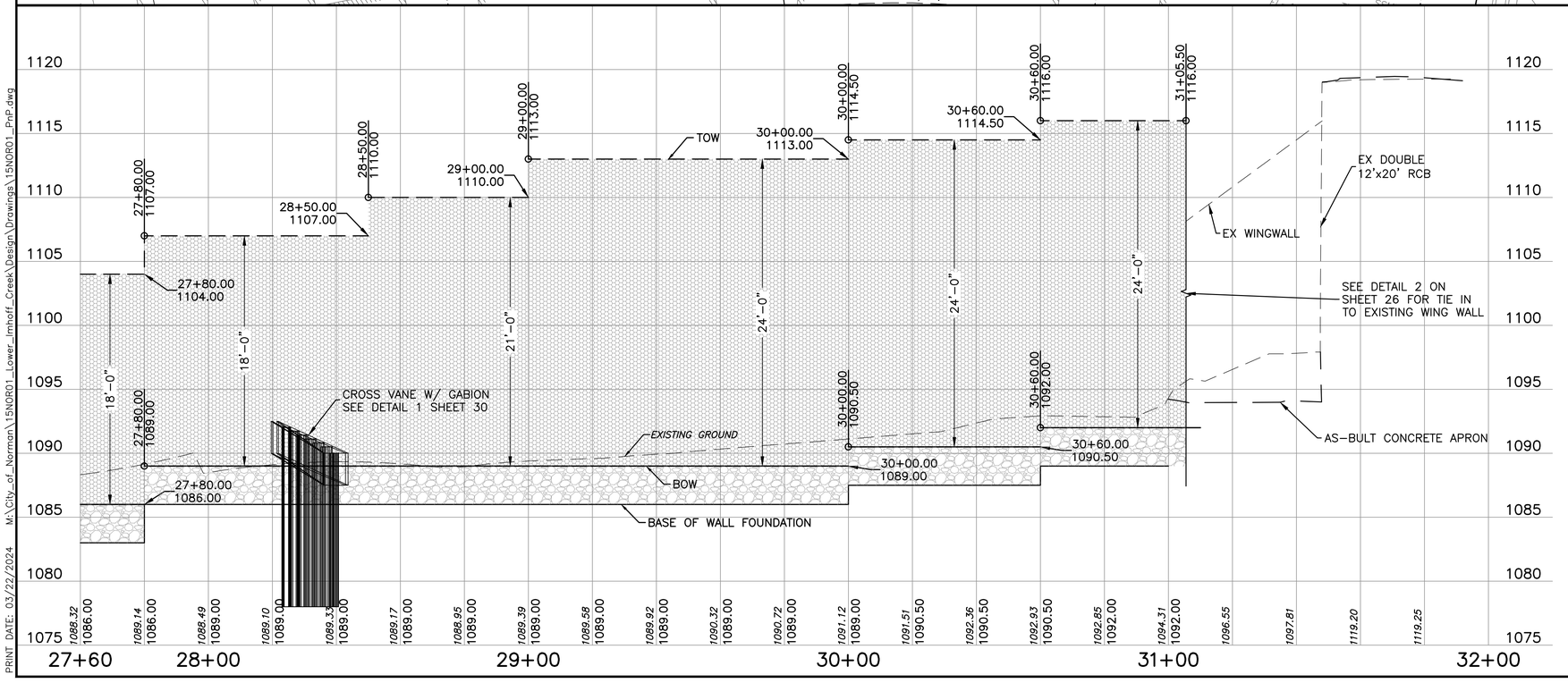


LEGEND

- RSS WALL FACE
- ROCK TOE REVETMENT SEE DETAIL 2 SHEET 30
- EXCAVATION AREA
- TCE — TEMPORARY CONSTRUCTION EASEMENT
- TOB — EXISTING TOP OF BANK
- EX-TOE — EXISTING TOE OF BANK
- EX CL CHANNEL
- CRL CHANNEL
- PROPOSED FENCE
- EXISTING FENCE
- G — EXISTING GAS (APPROX.)
- UGT — EX UNDRGND TELE (APPROX.)
- UGE — EX UNDRGND ELEC (APPROX.)
- SS — EX SAN. SEWER (APPROX.)

1. REPLACE EXISTING FENCE (6' STOCKADE)
2. RELOCATE GAS. LOCATE BY POTHOLING
3. PROTECT DURING CONSTRUCTION
4. REMOVE TREE
5. RESET U/E BOX. (BY OTHERS)
6. RESET U/T PEDESTAL. (BY OTHERS)
7. RELOCATE U/E. (BY OTHERS)
8. RELOCATE U/T. (BY OTHERS)
9. RESET SS MH
10. SHEET PILE CROSS VANE SEE DETAIL 1 SHEET 30

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



Wall Toe Line and Curve Table				
Line #/Curve #	Length	Bearing/Chord	Radius	Start Coord.
L60	75.61	N70° 39' 35.17"E		N: 675266.98 E: 2130119.66
L61	96.13	N67° 31' 06.32"E		N: 675321.05 E: 2130282.11
C61	117.68	Chord Length: 117.12' Chord Direction: N53° 59' 50"E	346.97	N: 675357.81 E: 2130370.93
C62	64.37	Chord Length: 64.24' Chord Direction: N50° 25' 38"E	300.00	N: 675426.65 E: 2130465.68
L62	109.40	N56° 34' 25.92"E		N: 675467.58 E: 2130515.20
C63	152.47	Chord Length: 143.27' Chord Direction: N24° 50' 55"E	125.56	N: 675527.85 E: 2130606.51
L63	206.45	N10° 01' 04.28"W		N: 675657.86 E: 2130666.71
L50	138.84	N4° 45' 31.03"E		N: 674838.25 E: 2130091.82

RSS WALL P&P 4

IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021
C.A. 1487 EXPIRES 6/30/25		
SHEET: 12 OF 30		

PRINT DATE: 03/22/2024 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_PnP.dwg

PR. CRL					
Number	Radius	Length	Line/Chord Direction	Start Coord.	Start Station
L1		167.26	N1° 47' 47.69"W	N: 674217.38 E: 2130062.48	10+00.00
C1	100.00	6.79	N0° 08' 55.21"E	N: 674384.56 E: 2130057.24	11+67.26
L2		63.70	N2° 05' 38.12"E	N: 674391.35 E: 2130057.25	11+74.06
C2	176.24	25.84	N2° 06' 24.43"W	N: 674455.01 E: 2130059.58	12+37.76
L3		132.87	N6° 18' 26.97"W	N: 674480.81 E: 2130058.63	12+63.60
C3	100.00	13.29	N10° 06' 57.38"W	N: 674612.88 E: 2130044.04	13+96.47
L4		0.20	N13° 55' 27.80"W	N: 674625.96 E: 2130041.70	14+09.77
C4	36.72	20.82	N2° 19' 12.73"E	N: 674626.15 E: 2130041.65	14+09.96
L5		36.53	N18° 33' 53.25"E	N: 674646.68 E: 2130042.49	14+30.78
C5	36.72	5.80	N14° 02' 29.28"E	N: 674681.30 E: 2130054.12	14+67.31
L6		12.23	N9° 31' 05.30"E	N: 674686.92 E: 2130055.52	14+73.11
C6	35.30	20.88	N7° 25' 26.83"W	N: 674698.98 E: 2130057.54	14+85.33
L7		26.02	N24° 21' 58.95"W	N: 674719.38 E: 2130054.88	15+06.21
C7	35.30	26.40	N2° 56' 38.36"W	N: 674743.09 E: 2130044.15	15+32.24
L8		97.10	N18° 28' 42.24"E	N: 674768.84 E: 2130042.82	15+58.64
C8	35.30	8.15	N11° 51' 48.64"E	N: 674860.94 E: 2130073.60	16+55.74
L9		59.38	N5° 14' 55.04"E	N: 674868.90 E: 2130075.27	16+63.89
C9	35.30	30.67	N19° 38' 14.76"W	N: 674928.03 E: 2130080.70	17+23.27
L10		61.55	N44° 31' 24.56"W	N: 674956.01 E: 2130070.72	17+53.94
C10	35.30	20.20	N28° 08' 01.83"W	N: 674999.90 E: 2130027.55	18+15.50

PR. CRL					
Number	Radius	Length	Line/Chord Direction	Start Coord.	Start Station
L11		36.47	N11° 44' 39.09"W	N: 675017.47 E: 2130018.16	18+35.69
C11	35.30	7.02	N6° 02' 55.25"W	N: 675053.18 E: 2130010.74	18+72.17
L12		36.26	N0° 21' 11.41"W	N: 675060.15 E: 2130010.00	18+79.18
C12	35.30	20.49	N16° 58' 41.89"W	N: 675096.41 E: 2130009.77	19+15.45
L13		13.97	N33° 36' 12.36"W	N: 675115.73 E: 2130003.87	19+35.93
C13	35.30	11.51	N42° 56' 46.31"W	N: 675127.37 E: 2129996.14	19+49.91
L14		19.96	N52° 17' 20.27"W	N: 675135.76 E: 2129988.33	19+61.42
C14	18.90	23.15	N17° 12' 32.29"W	N: 675147.96 E: 2129972.55	19+81.38
L15		17.21	N17° 52' 15.69"E	N: 675168.72 E: 2129966.12	20+04.52
C15	18.90	6.44	N27° 38' 04.15"E	N: 675185.10 E: 2129971.40	20+21.73
L16		39.88	N37° 23' 52.62"E	N: 675190.78 E: 2129974.37	20+28.17
C16	18.90	10.11	N52° 43' 12.26"E	N: 675222.46 E: 2129998.59	20+68.06
L17		175.70	N68° 02' 31.90"E	N: 675228.51 E: 2130006.54	20+78.17
C17	58.88	15.20	N75° 26' 21.09"E	N: 675294.21 E: 2130169.50	22+53.86
L24		26.15	N82° 50' 10.28"E	N: 675298.02 E: 2130184.17	22+69.07
C23	112.44	41.63	N72° 13' 44.42"E	N: 675301.28 E: 2130210.12	22+95.22
L25		48.67	N61° 37' 18.55"E	N: 675313.92 E: 2130249.54	23+36.85
C24	164.85	69.84	N73° 45' 32.03"E	N: 675337.05 E: 2130292.36	23+85.52
L23		0.88	N85° 53' 45.52"E	N: 675356.44 E: 2130358.91	24+55.36
C18	34.17	22.74	N66° 50' 02.11"E	N: 675356.50 E: 2130359.79	24+56.24

PR. CRL					
Number	Radius	Length	Line/Chord Direction	Start Coord.	Start Station
L22		103.40	N47° 46' 18.70"E	N: 675365.28 E: 2130380.31	24+78.98
L26		74.48	N48° 49' 13.61"E	N: 675434.77 E: 2130456.87	25+82.38
C25	130.19	28.63	N55° 07' 09.66"E	N: 675483.81 E: 2130512.93	26+56.86
L27		65.50	N61° 25' 05.71"E	N: 675500.15 E: 2130536.37	26+85.48
C19	129.26	152.28	N27° 40' 05.25"E	N: 675531.49 E: 2130593.89	27+50.99
L20		22.77	N6° 04' 55.21"W	N: 675658.69 E: 2130660.58	29+03.27
C20	325.12	30.52	N8° 46' 16.74"W	N: 675681.33 E: 2130658.17	29+26.04
L21		87.41	N11° 27' 38.28"W	N: 675711.48 E: 2130653.52	29+56.56
C21	18.90	1.53	N13° 46' 51.79"W	N: 675797.15 E: 2130636.15	30+43.97
L18		55.70	N16° 06' 05.31"W	N: 675798.64 E: 2130635.78	30+45.50
C22	18.90	2.19	N19° 25' 20.92"W	N: 675852.16 E: 2130620.33	31+01.20
L19		89.97	N22° 44' 36.54"W	N: 675854.22 E: 2130619.61	31+03.39

PRINT DATE: 03/22/2024 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_EROSION.dwg

PR CRL DATA

IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021

C.A. 1487 EXPIRES 6/30/25

END

LEGEND

- RSS WALL FACE
- ROCK TOE REVETMENT SEE DETAIL 2 SHEET 30
- EXCAVATION AREA
- TCE — TEMPORARY CONSTRUCTION EASEMENT
- TOB — EXISTING TOP OF BANK
- EX-TOE — EXISTING TOE OF BANK
- EX CL CHANNEL
- CRL CHANNEL
- PROPOSED FENCE
- X — EXISTING FENCE
- G — EXISTING GAS (APPROX.)
- UGT — EX UNDRGND TELE (APPROX.)
- UGE — EX UNDRGND ELEC (APPROX.)
- SS — EX SAN. SEWER (APPROX.)

PROPOSED FLEXAMAT ACCESS PATH

56'-0"

12'-0"

42'-0"

EXISTING RIPRAP

EXISTING WINGWALL

TIE IN ROCK TOE REVETMENT TO EXISTING RIPRAP.

EX TRIPLE 12'x20' RCB

EXISTING RIPRAP

EXISTING CONC. APRON

EXISTING WINGWALL

SEE DETAIL 2 ON SHEET 26 FOR WALL TRANSITION AND EXTENSION BEHIND WINGWALL.

30+00

31+00

31+93

WASHOUT AREA

W IMHOFF RD

L18 L19 L20 L25 C20 C21 C22

TCE

0 5 10 20

SCALE IN FEET

CAUTION
SANITARY SEWER
GAS
U/T
U/E

PRINT DATE: 11/7/24 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_GRADING.dwg

NORTH GRADING

IMHOFF CREEK BANK STABILIZATION

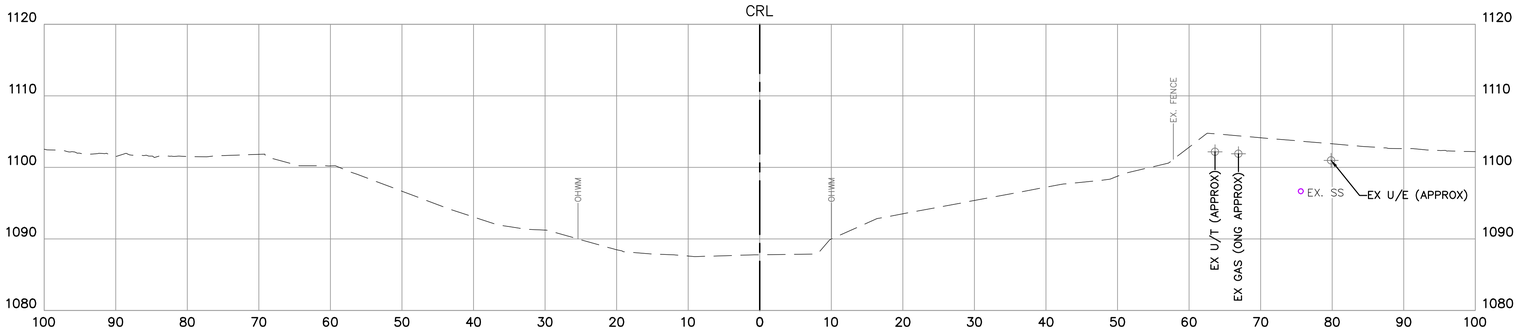
CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

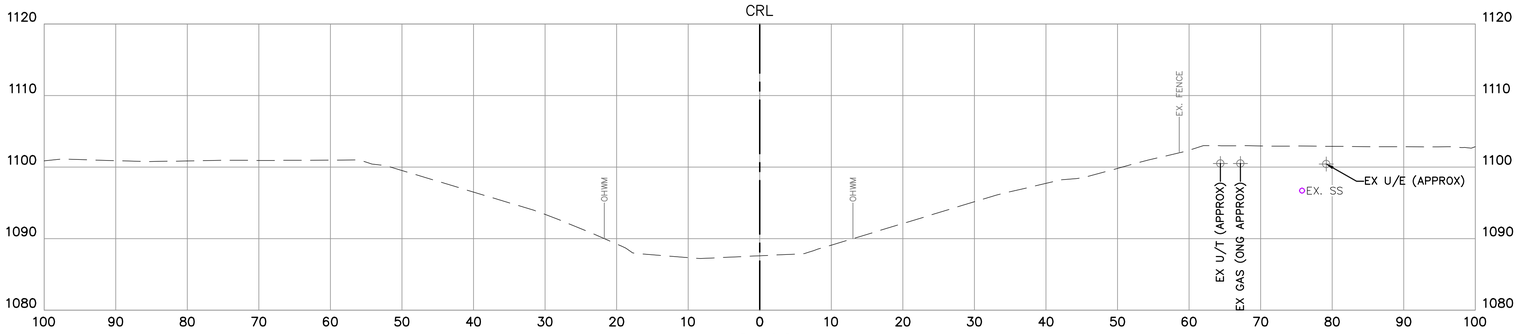
REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021

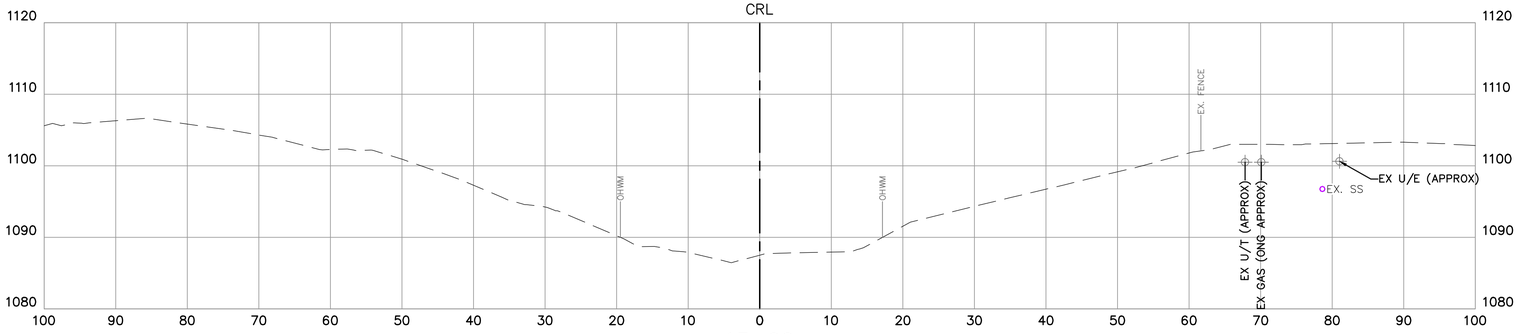
C.A. 1487 EXPIRES 6/30/25



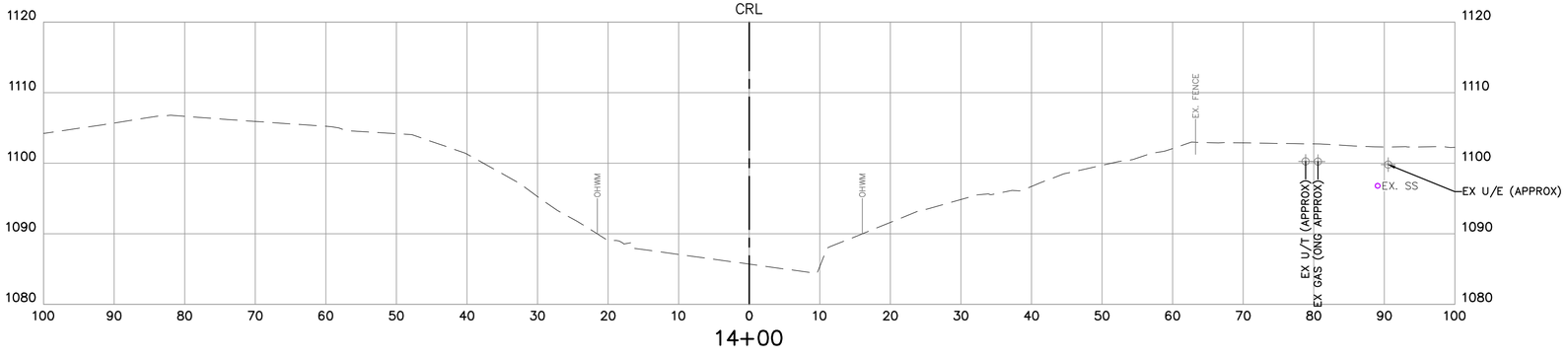
11+00



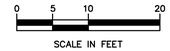
12+00



13+00



14+00



LEGEND

- EMBANKMENT FILL (NATIVE SOIL)
- REINFORCED FILL
- ODOT TYPE 'D' AGGREGATE

PRINT DATE: 3/22/24 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_SECTIONS.dwg

SECTION SHEET – (1)

IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

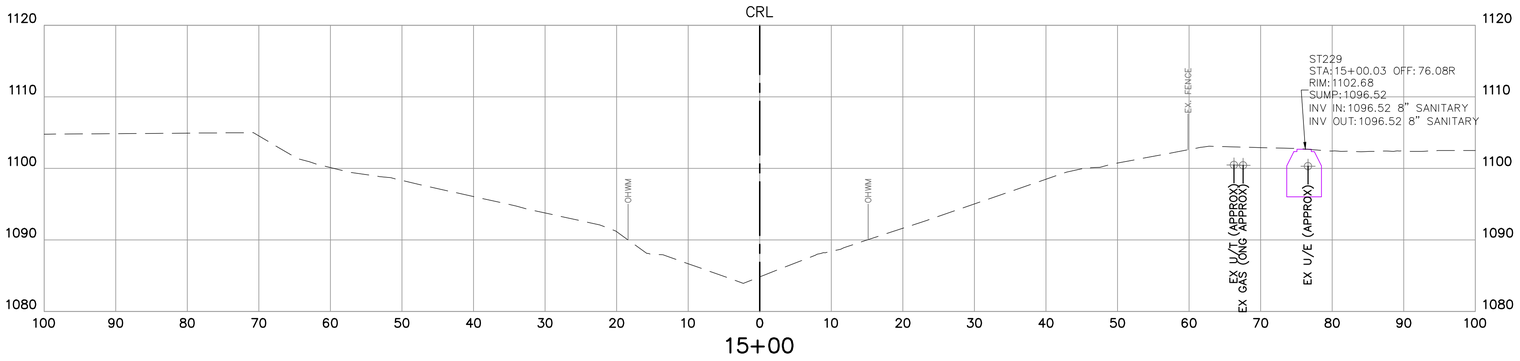
PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

REVISION	BY	DATE

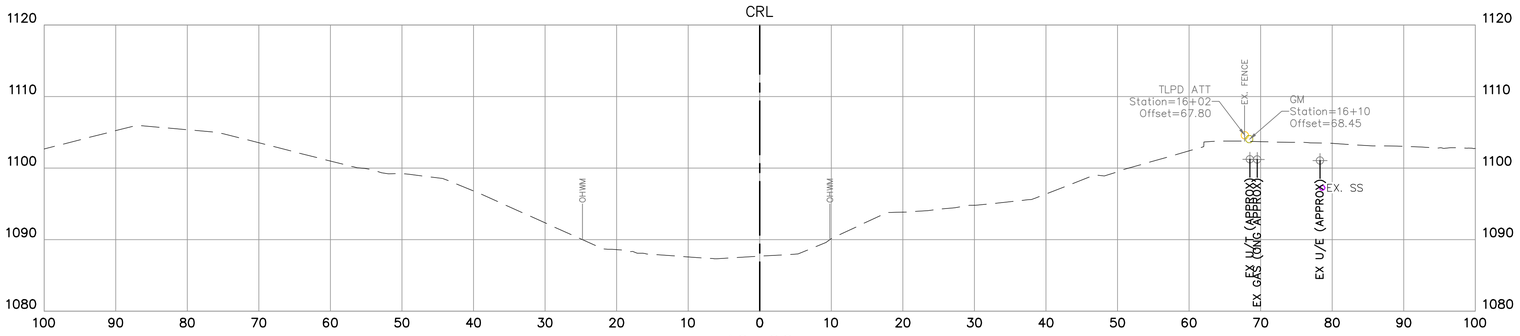
DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021

C.A. 1487 EXPIRES 6/30/25

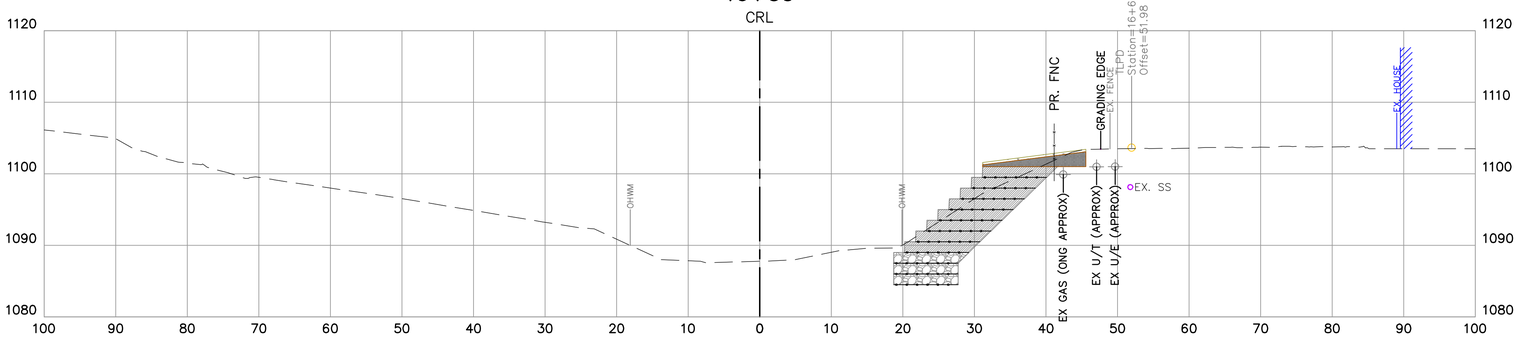
SHEET: 15 OF 30



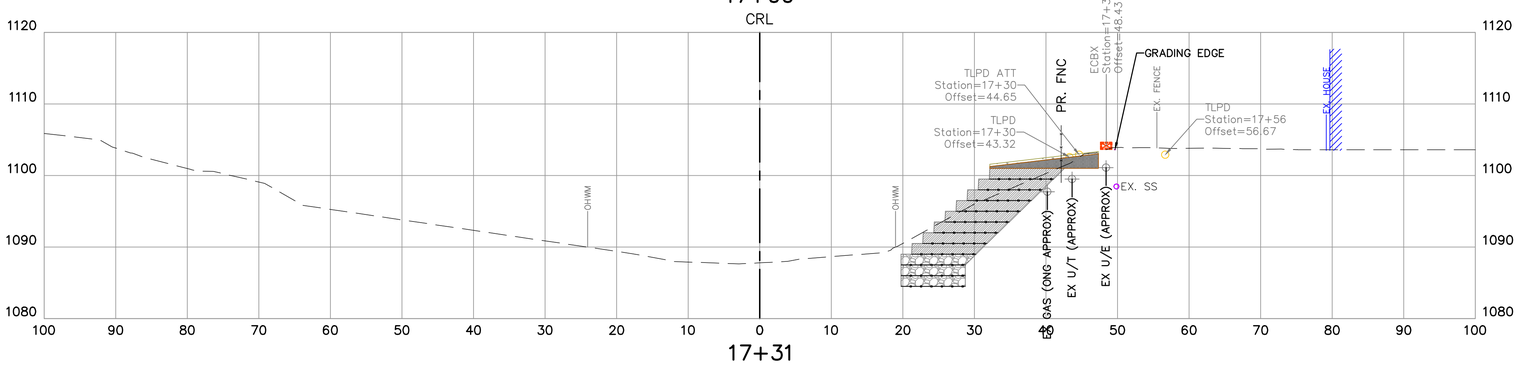
15+00



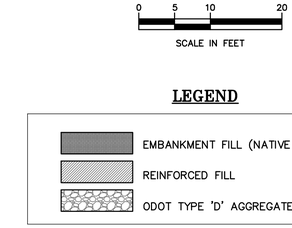
16+00



17+00



17+31



SECTION SHEET – (2)

IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

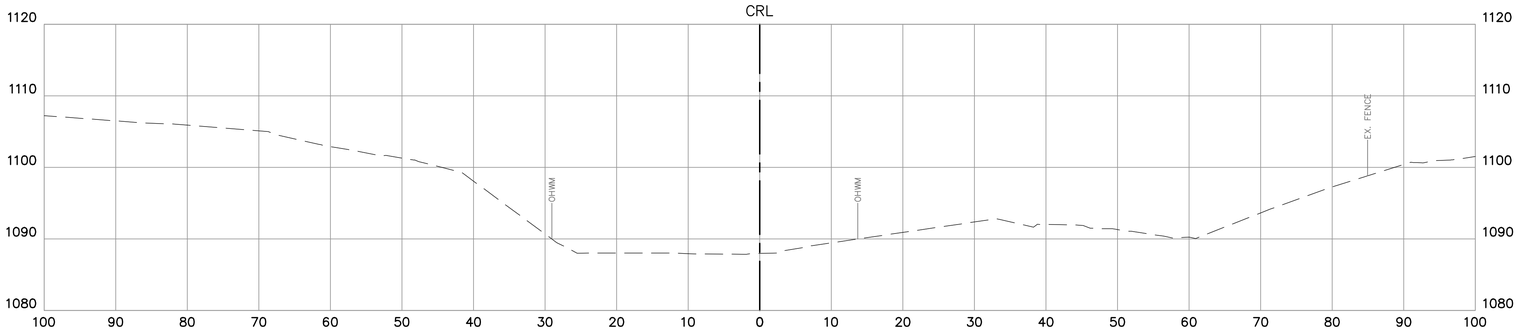
REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021

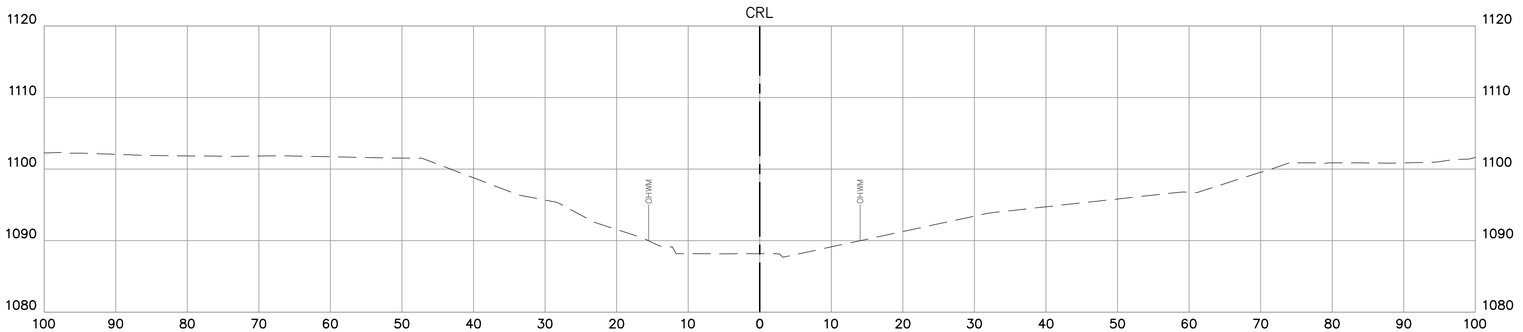
C.A. 1487 EXPIRES 6/30/25

SHEET: 16 OF 30

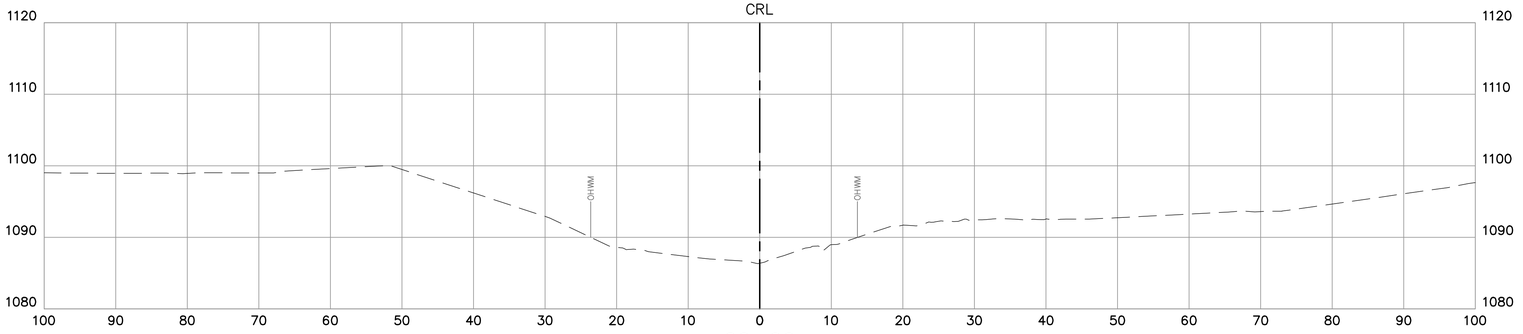
PRINT DATE: 3/22/24 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_SECTIONS.dwg



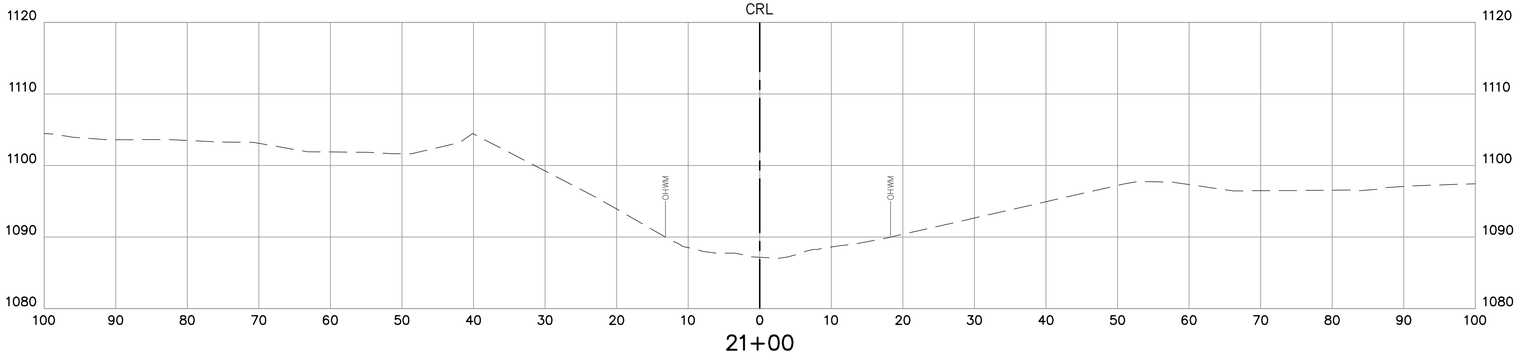
18+00



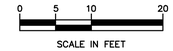
19+00



20+00



21+00



LEGEND

- EMBANKMENT FILL (NATIVE SOIL)
- REINFORCED FILL
- ODOT TYPE 'D' AGGREGATE

SECTION SHEET – (3)

IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

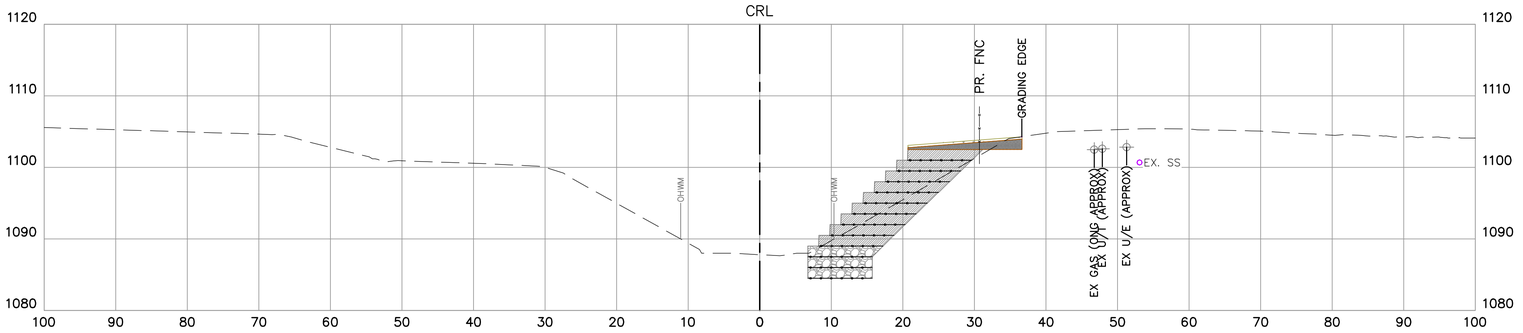
REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021

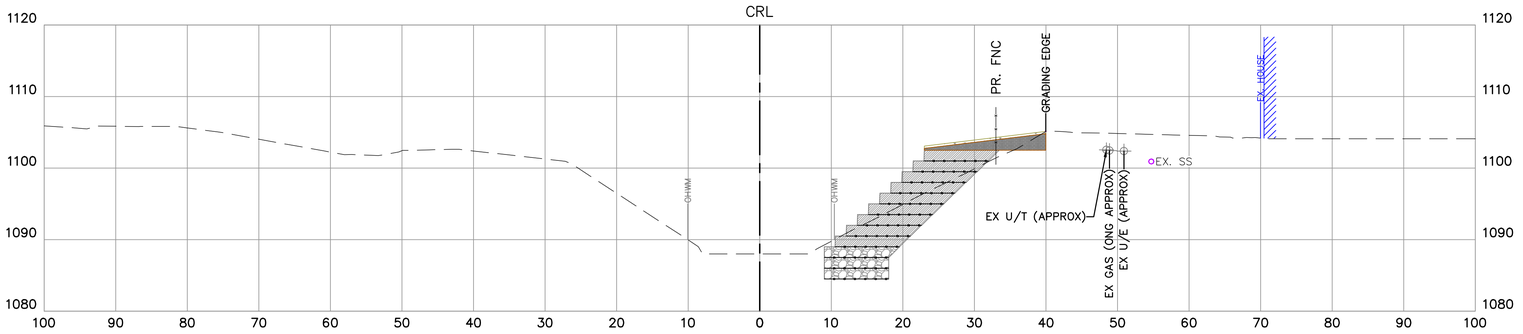
C.A. 1487 EXPIRES 6/30/25

SHEET: 17 OF 30

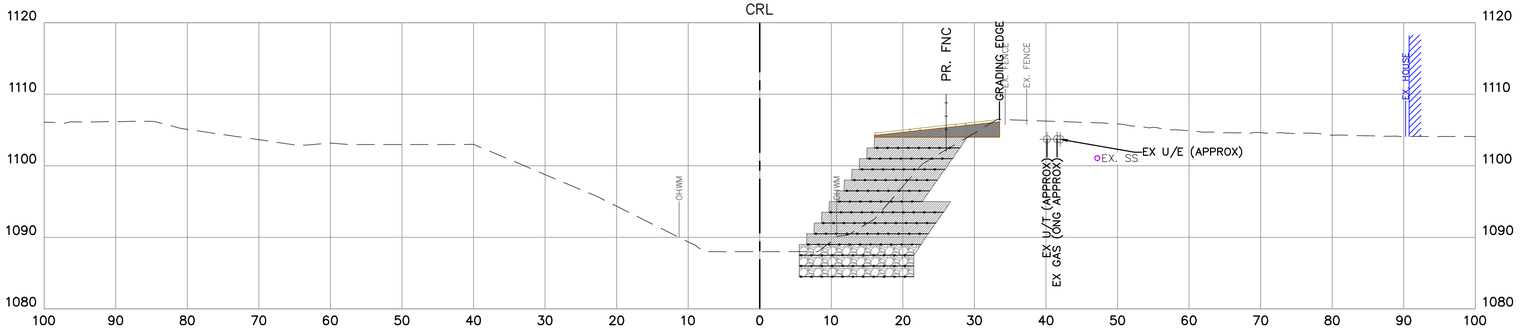
PRINT DATE: 3/22/24 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_SECTIONS.dwg



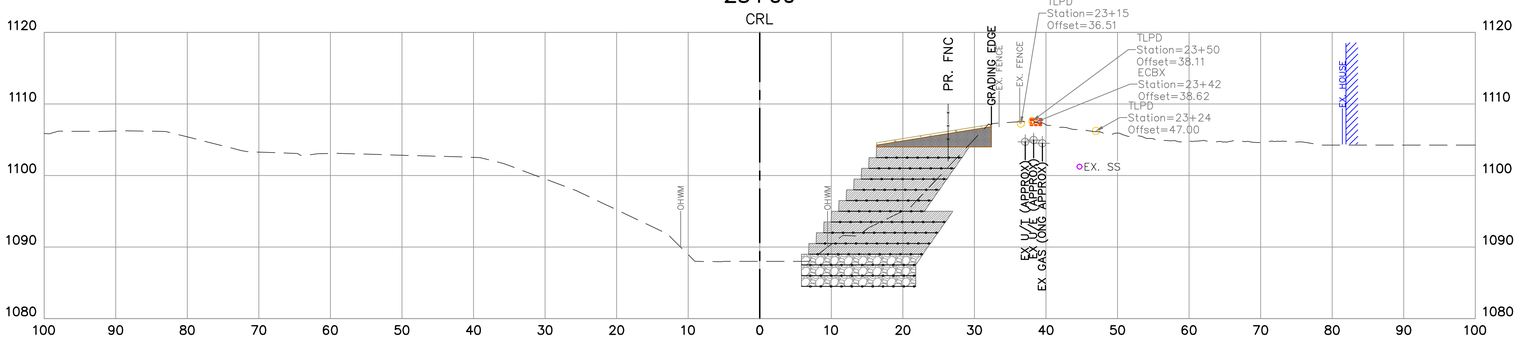
22+00



22+62



23+00



23+27

0 5 10 20

SCALE IN FEET

LEGEND

- EMBANKMENT FILL (NATIVE SOIL)
- REINFORCED FILL
- ODOT TYPE 'D' AGGREGATE

PRINT DATE: 3/22/24 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_SECTIONS.dwg

SECTION SHEET – (4)

IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

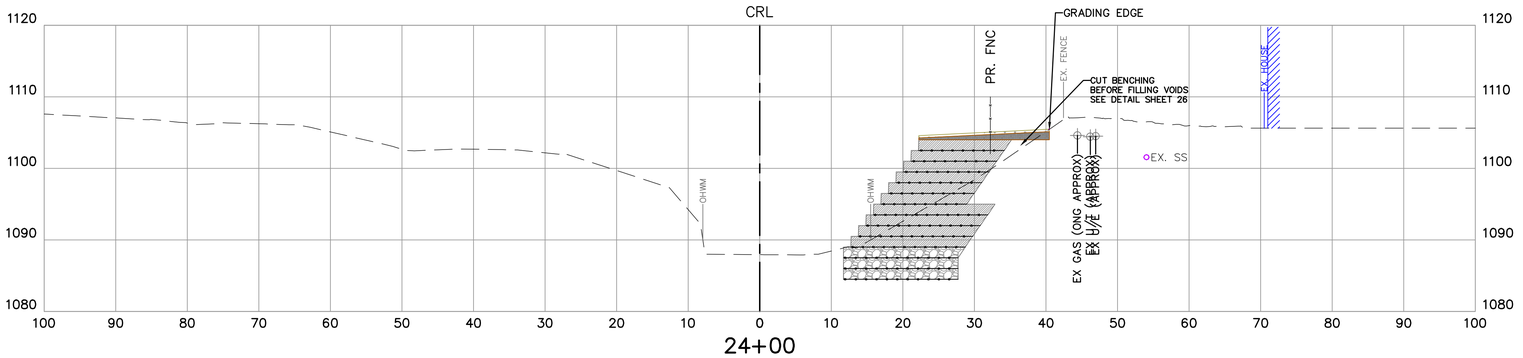
PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

REVISION	BY	DATE

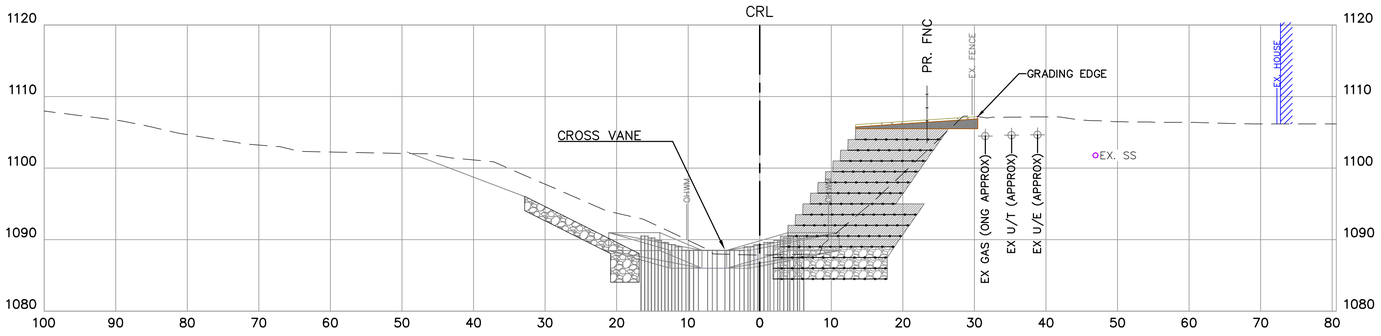
DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021

C.A. 1487 EXPIRES 6/30/25

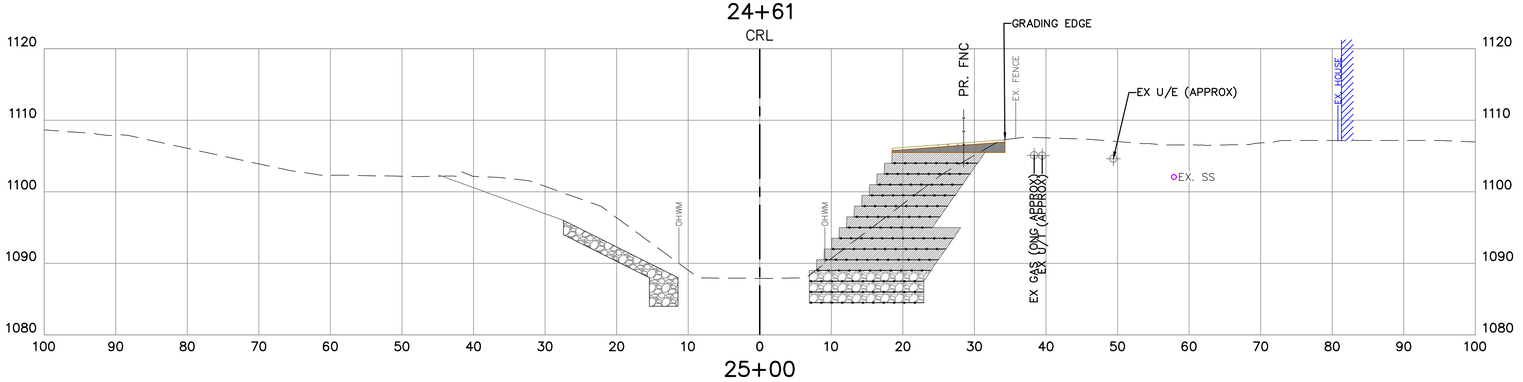
SHEET: 18 OF 30



24+00



24+61



25+00

0 5 10 20

SCALE IN FEET

LEGEND

- EMBANKMENT FILL (NATIVE SOIL)
- REINFORCED FILL
- ODOT TYPE 'D' AGGREGATE

PRINT DATE: 3/22/24 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_SECTIONS.dwg

SECTION SHEET – (5)

IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

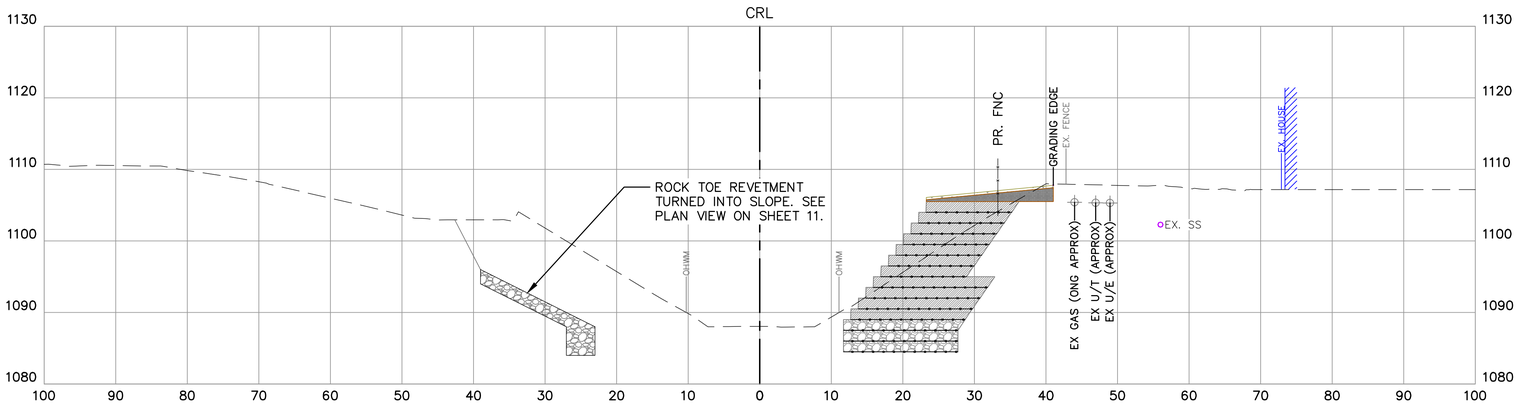
PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

REVISION	BY	DATE

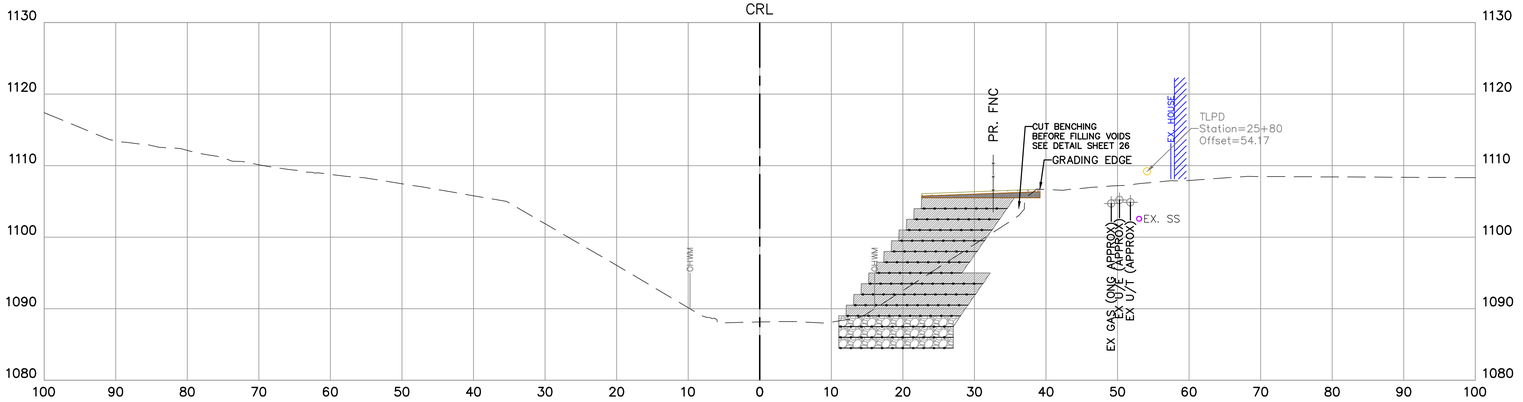
DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021

C.A. 1487 EXPIRES 6/30/25

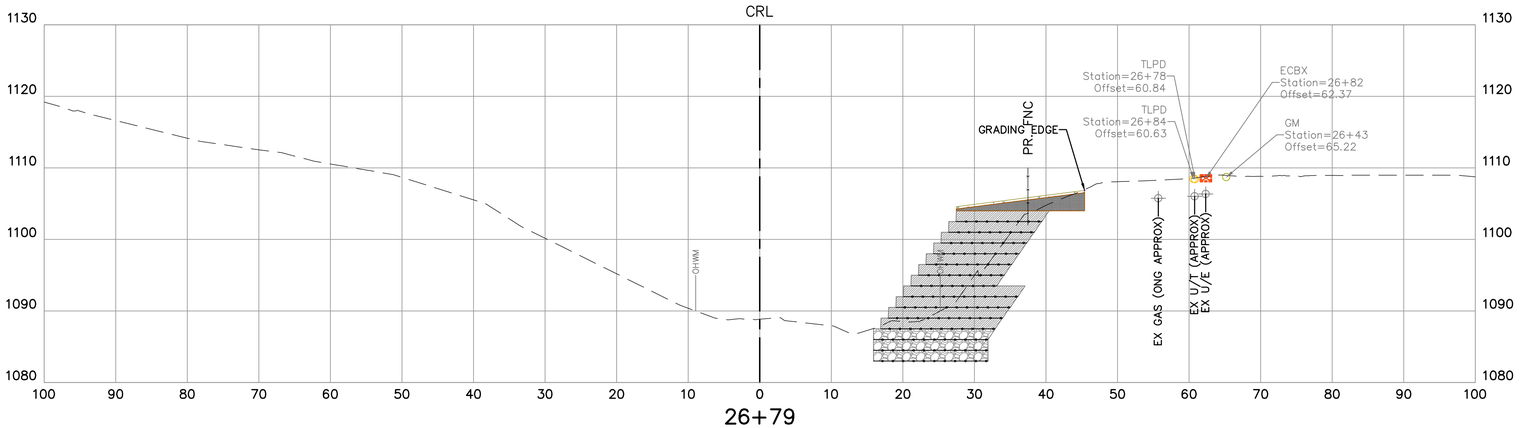
SHEET: 19 OF 30



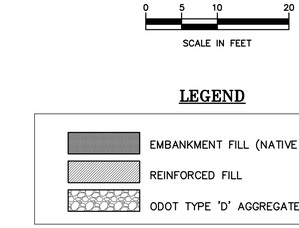
25+41



26+00



26+79



SECTION SHEET – (6)

IMHOFF CREEK BANK STABILIZATION

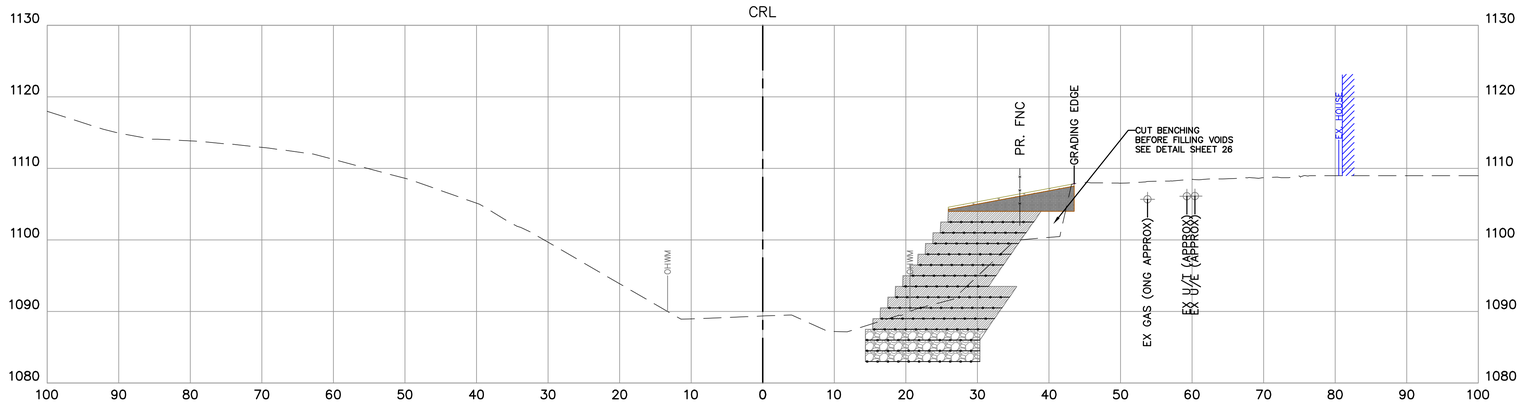
CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

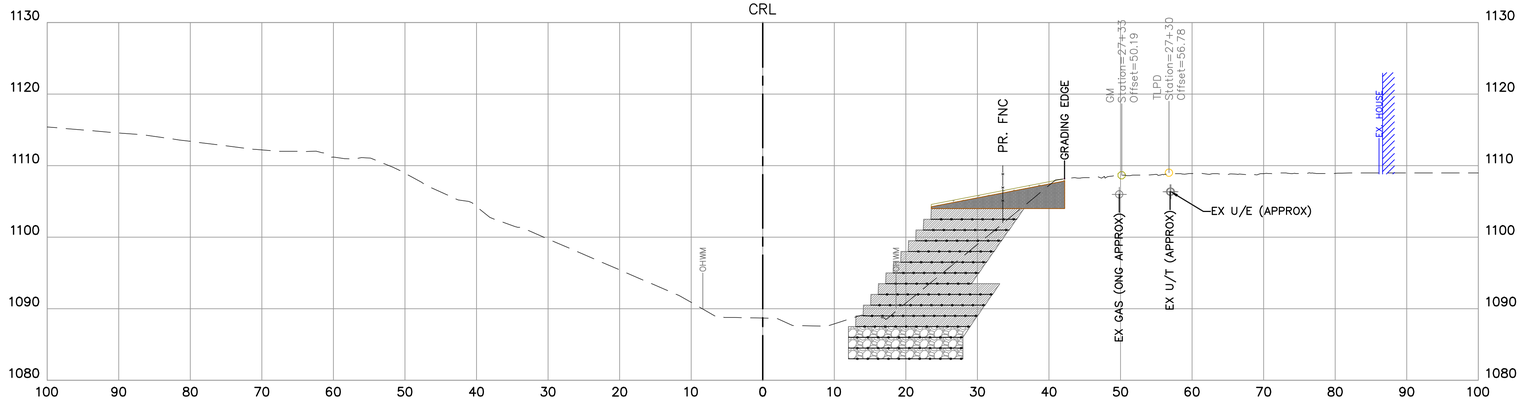
REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021
C.A. 1487 EXPIRES 6/30/25		
SHEET:	20 OF 30	

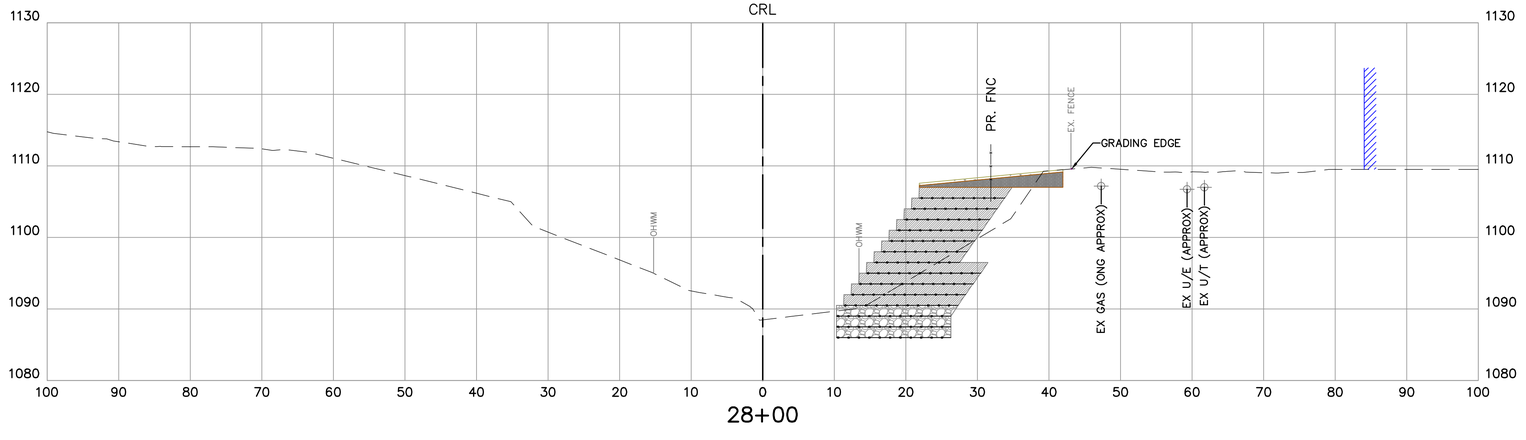
PRINT DATE: 3/22/24 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_SECTIONS.dwg



27+00



27+28



28+00

0 5 10 20
SCALE IN FEET

LEGEND

- EMBANKMENT FILL (NATIVE SOIL)
- REINFORCED FILL
- ODOT TYPE 'D' AGGREGATE

SECTION SHEET – (7)

IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

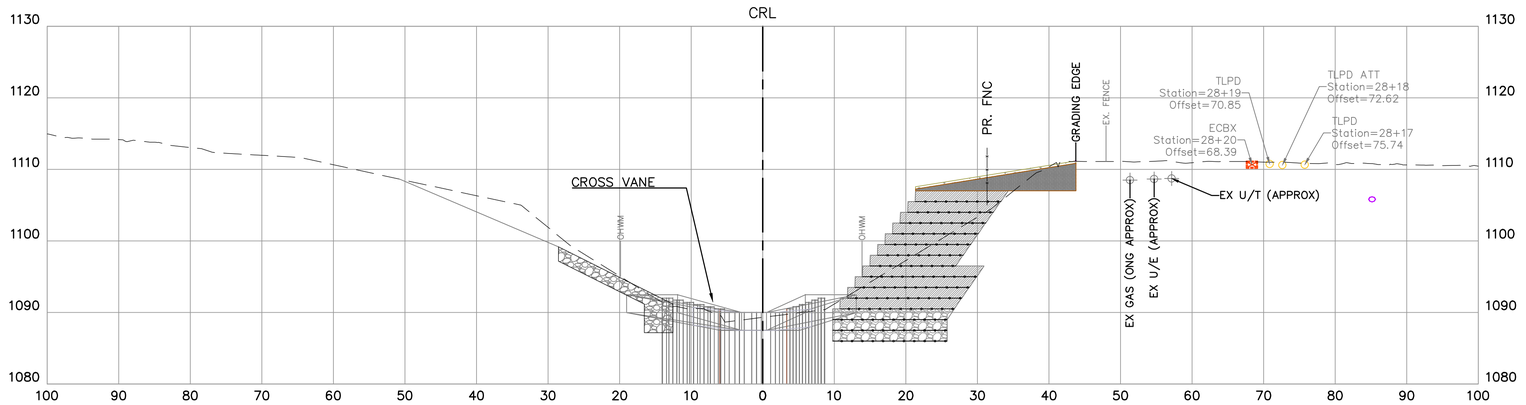
REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021

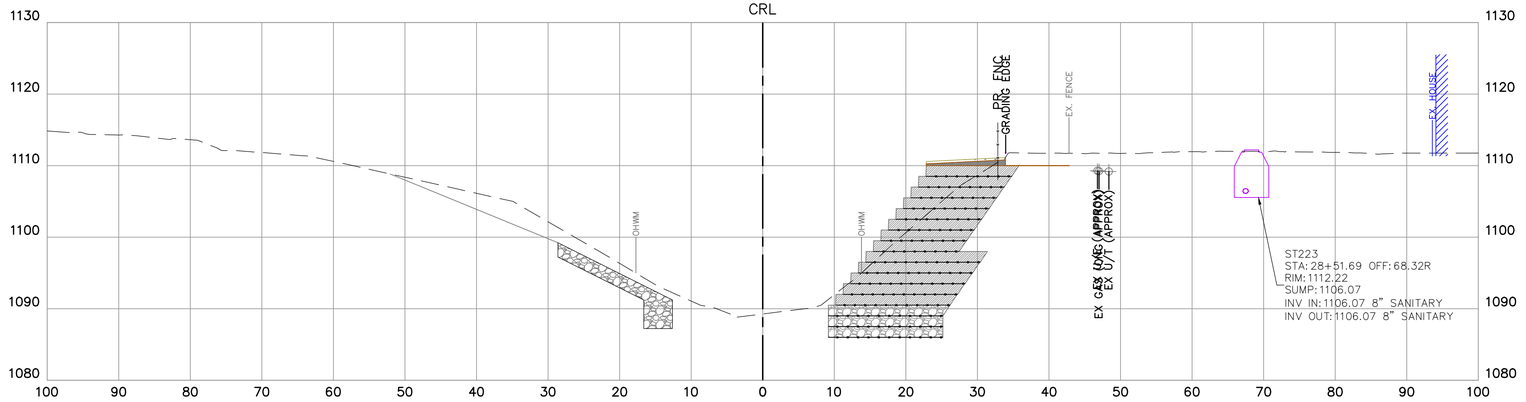
C.A. 1487 EXPIRES 6/30/25

SHEET: 21 OF 30

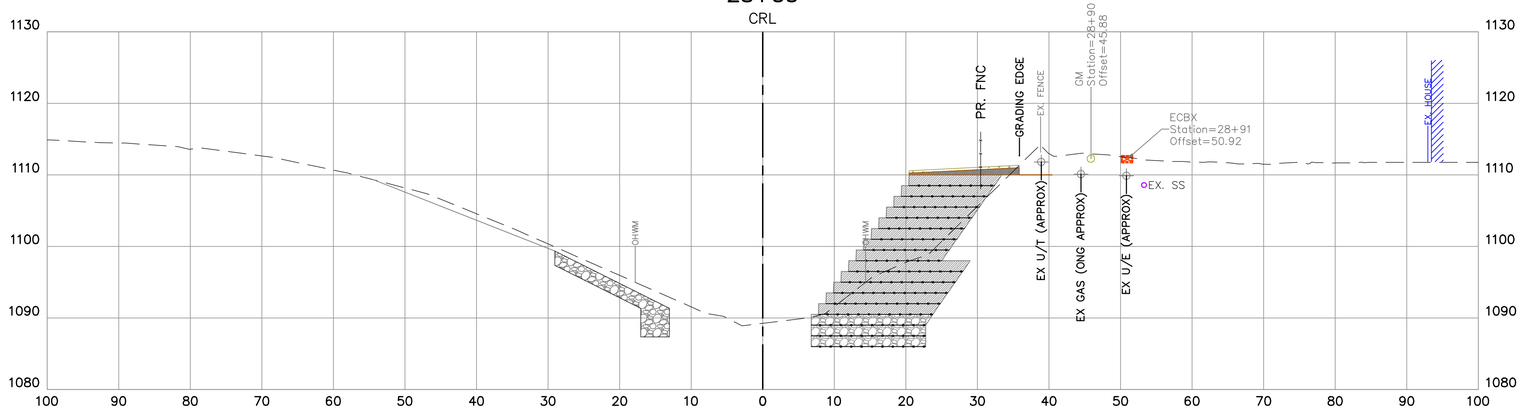
PRINT DATE: 3/22/24 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_SECTIONS.dwg



28+38



28+53



28+92

0 5 10 20
SCALE IN FEET

LEGEND

- EMBANKMENT FILL (NATIVE SOIL)
- REINFORCED FILL
- ODOT TYPE 'D' AGGREGATE

SECTION SHEET – (8)

IMHOFF CREEK BANK STABILIZATION

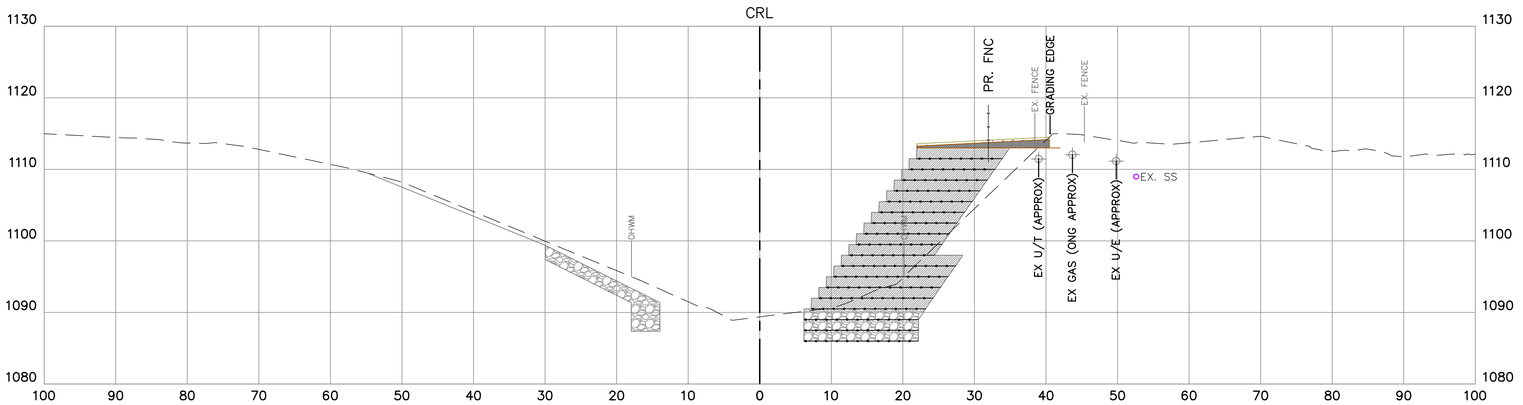
CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

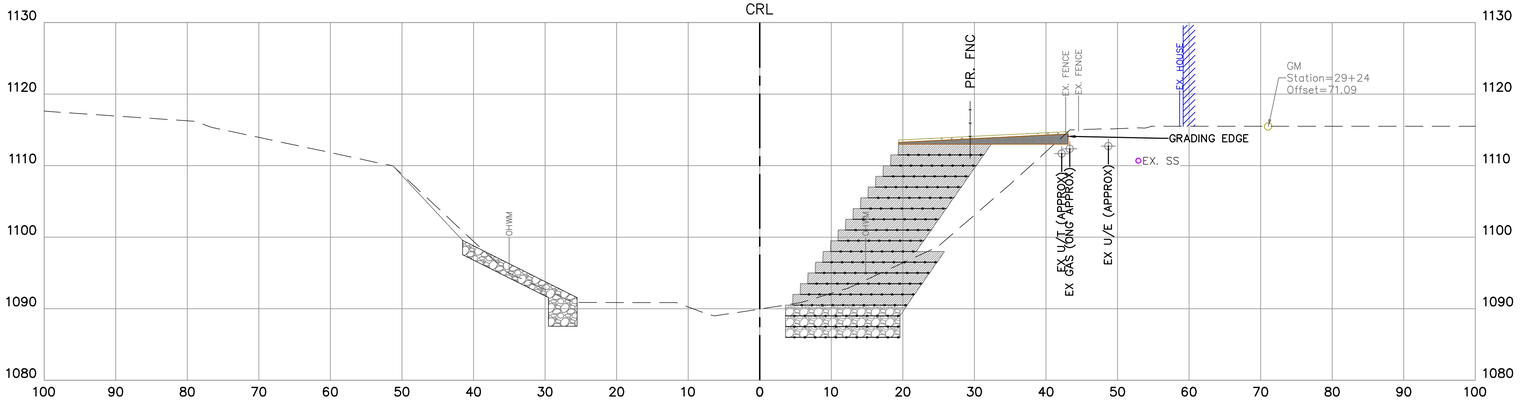
REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021
C.A. 1487 EXPIRES 6/30/25		
SHEET: 22 OF 30		

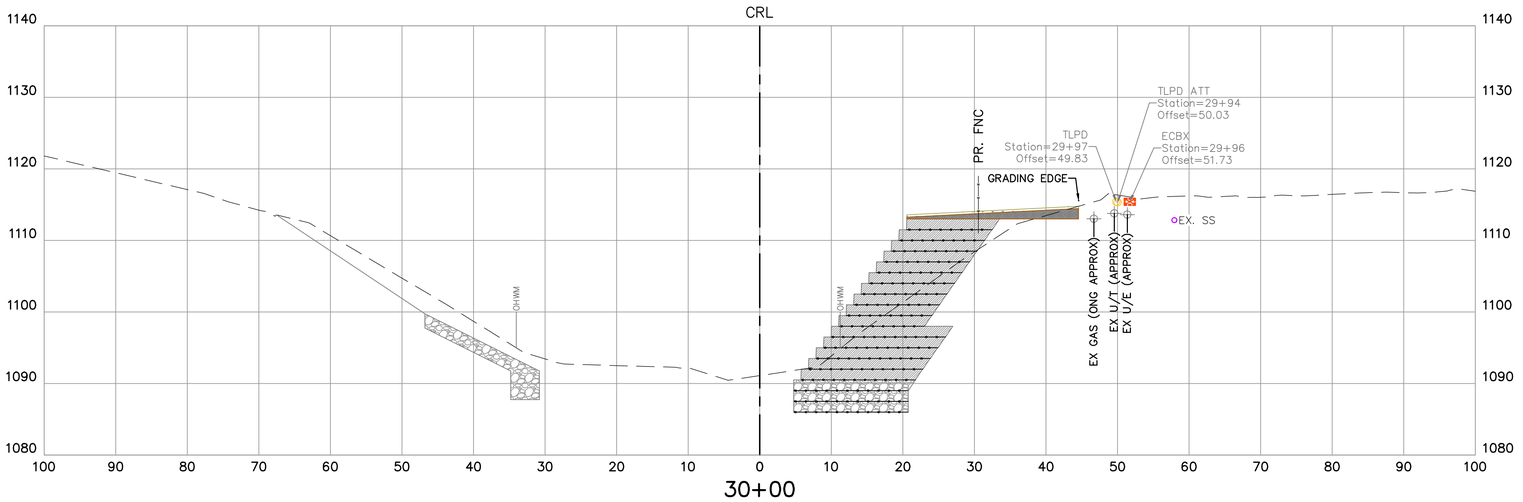
PRINT DATE: 3/22/24 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_SECTIONS.dwg



29+00



29+43



30+00

0 5 10 20

SCALE IN FEET

LEGEND

- EMBANKMENT FILL (NATIVE SOIL)
- REINFORCED FILL
- ODOT TYPE 'D' AGGREGATE

SECTION SHEET – (9)

IMHOFF CREEK BANK STABILIZATION

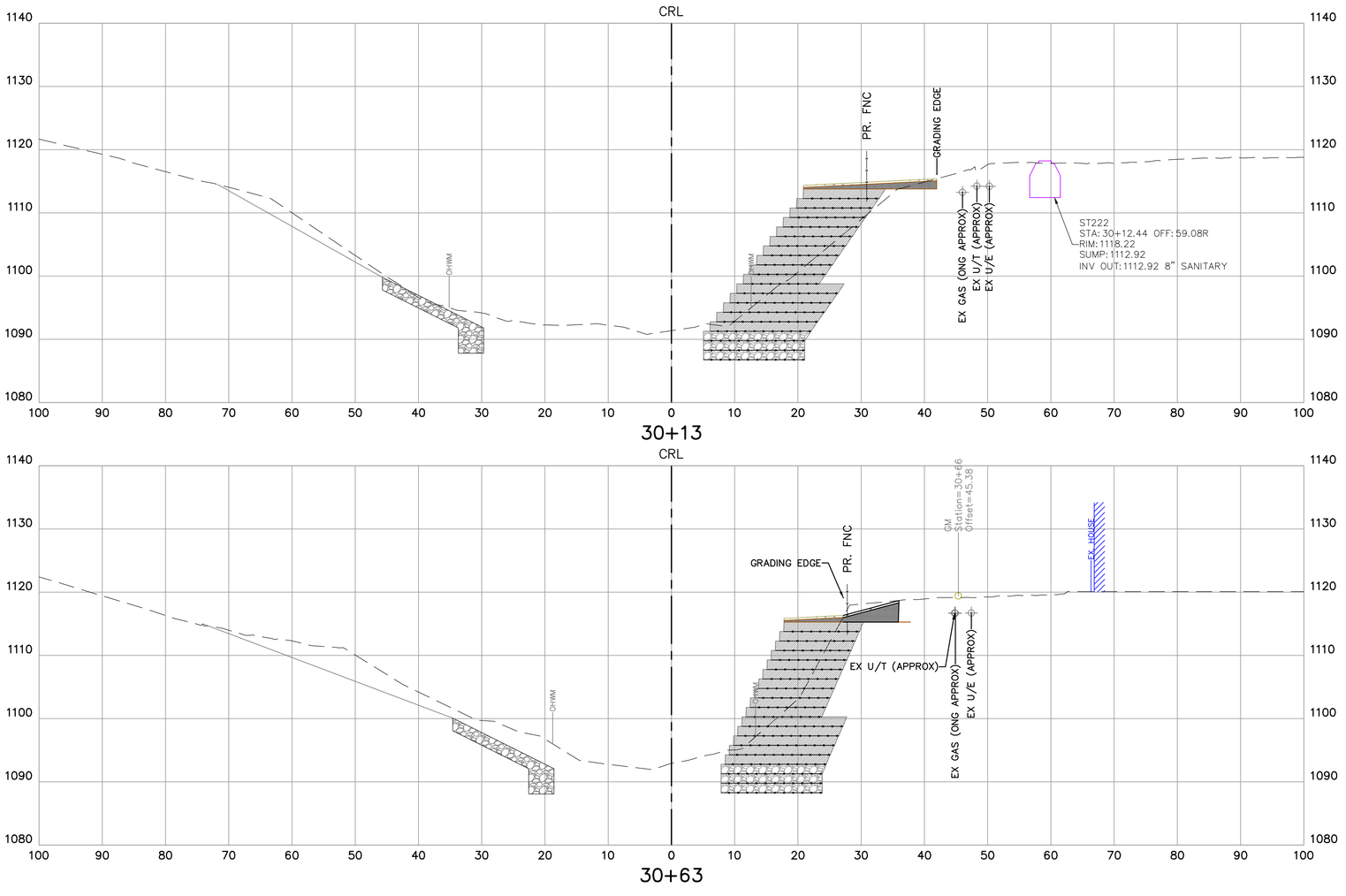
CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021
C.A. 1487 EXPIRES 6/30/25		
SHEET: 23 OF 30		

PRINT DATE: 3/22/24 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_SECTIONS.dwg



0 5 10 20

SCALE IN FEET

LEGEND

- EMBANKMENT FILL (NATIVE SOIL)
- REINFORCED FILL
- ODOT TYPE 'D' AGGREGATE

PRINT DATE: 3/22/24 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_SECTIONS.dwg

SECTION SHEET – (10)

IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

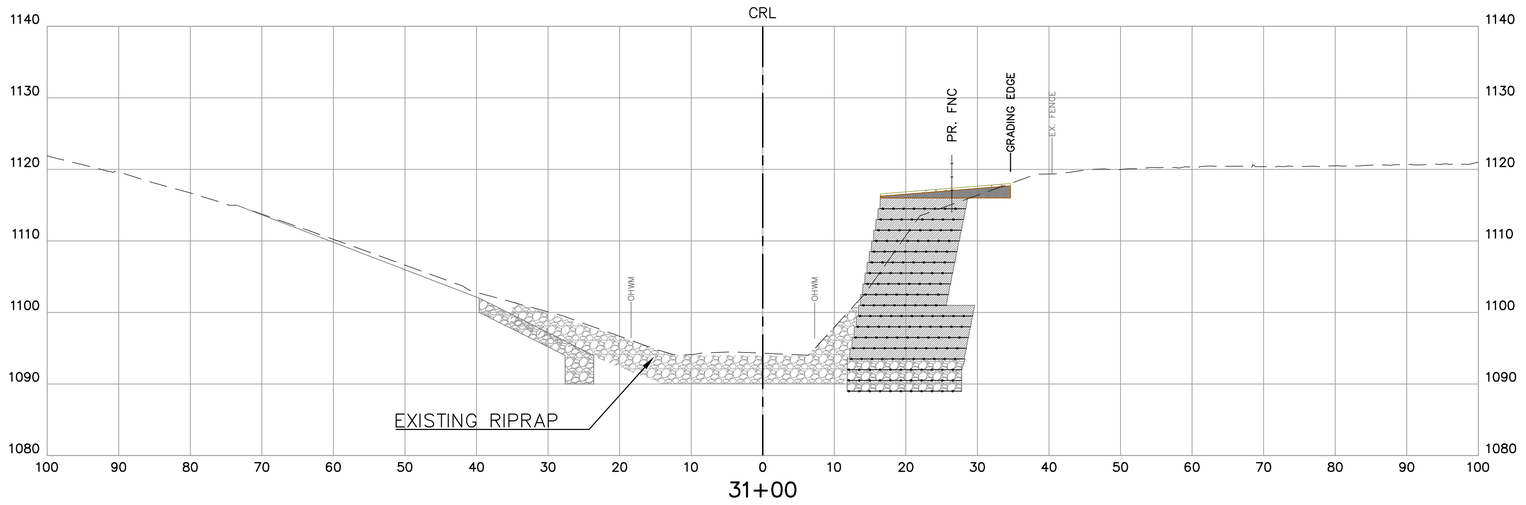
PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021

C.A. 1487 EXPIRES 6/30/25

SHEET: 24 OF 30



31+00

LEGEND

- EMBANKMENT FILL (NATIVE SOIL)
- REINFORCED FILL
- ODOT TYPE 'D' AGGREGATE

SECTION SHEET – (11)

IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

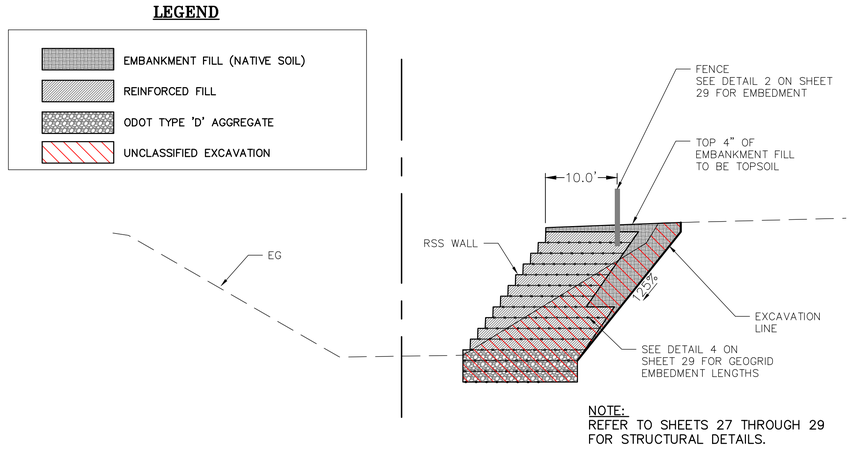
REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021

C.A. 1487 EXPIRES 6/30/25

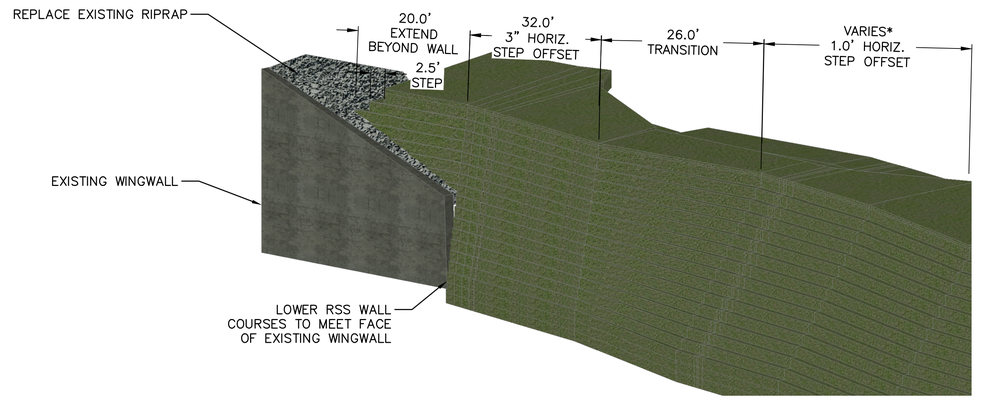
SHEET: 25 OF 30

PRINT DATE: 3/22/24 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_SECTIONS.dwg



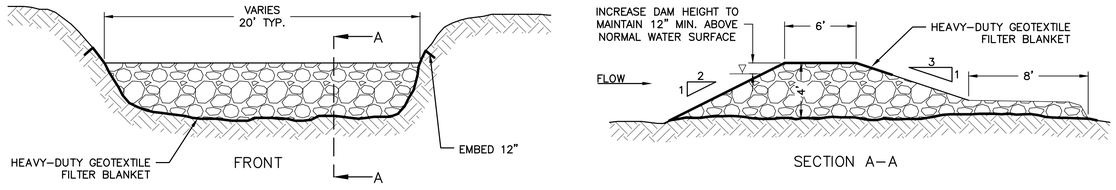
1 EXCAVATION DETAIL

SCALE: NONE



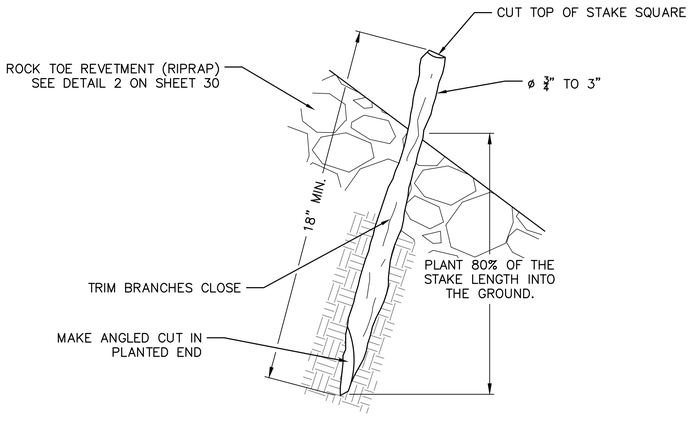
2 WALL TIE–IN DETAIL

SCALE: NONE
STA. 31+05



3 ROCK FILTER DAM

SCALE: NONE

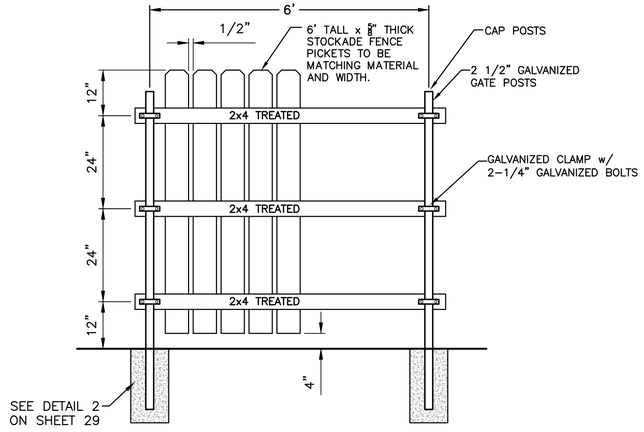


5 LIVE STAKING DETAIL

SCALE: NONE

LIVE STAKING NOTES:

1. AVOID PLANTING DURING SUMMER MONTHS
2. STAKES ARE TO BE PLANTED AFTER THE RIPRAP IS PLACED.
3. LIVE STAKES ARE TO BE INSTALLED IN ROCK TOE REVETMENT 2' ABOVE CHANNEL BASE FLOW.
4. INSTALL 3 STAKES PER LINEAR FOOT ALONG ROCK TOE REVETMENT.
5. USE HEALTHY, STRAIGHT AND LIVE WOOD AT LEAST 1 YEAR OLD.
6. MAKE CLEAN CUTS AND DO NOT DAMAGE STAKES OR SPLIT ENDS DURING INSTALLATION; USE AN IRON BAR TO MAKE A PILOT HOLE PRIOR TO DRIVING THE STAKE. DRIVE THE STAKE USING A RUBBER MALLET TO REDUCE SPLITTING DAMAGE TO THE STAKE.
7. SOAK CUTTINGS FOR AT LEAST 24 HOURS PRIOR TO INSTALLATION. (5–7 DAYS RECOMMENDED)
8. KEEP STAKES MOIST AND COVERED AT ALL TIMES: FROM HARVEST, THROUGH STORAGE AND TRANSPORT, TO INSTALLATION.
9. TAMP THE SOIL AROUND THE STAKE.
10. 2 TO 5 BUDS SCARS SHALL BE ABOVE GROUND.
11. CONTACT MISSOURI DEPARTMENT OF CONSERVATION (573–674–3229) FOR PURCHASING LIVE PLANTING STAKES. OTHER SOURCES ARE ACCEPTABLE.
12. CONTRACTOR MUST PROVIDE PROOF OF PURCHASE AND SPECIES TYPE PURCHASED TO THE ENGINEER AND CITY.
13. SPECIES TO BE SANDBAR WILLOW (SALIX INTERIOR ROWLEE). ALTERNATIVES INCLUDE BLACK WILLOW AND WEEPING WILLOW.



4 6' PRIVACY FENCE

SCALE: NONE

MESHEK DETAILS

IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392–5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594–0127

REVISION	BY	DATE

DRAWN	CGH	12/2023
DESIGNED	HCW	12/2023
SURVEY	MR	7/2021
C.A. 1487 EXPIRES 6/30/25		
SHEET: 26 OF 30		

PRINT DATE: 3/22/24 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_MESHEK_DETAILS.dwg

REINFORCED SOIL SLOPE (RSS)

PART 1 GENERAL

1.1 DEFINITIONS

A. MINIMUM AVERAGE ROLL VALUE (MARV): PROPERTY VALUE CALCULATED AS TYPICAL MINUS TWO STANDARD DEVIATIONS. STATISTICALLY, IT YIELDS A 97.7 PERCENT DEGREE OF CONFIDENCE THAT ANY SAMPLE TAKEN DURING QUALITY ASSURANCE TESTING WILL EXCEED VALUE REPORTED.

B. CURRENT CERTIFICATION: A CERTIFICATION DATED WITHIN THE LAST CALENDAR YEAR, ATTESTED BY A PERSON HAVING LEGAL AUTHORITY FOR THE MANUFACTURER.

C. LONG-TERM DESIGN STRENGTH (LTDS)

1.2 THE OVERALL STABILITY OF THE RETAINING WALL SYSTEM IS BASED ON THE STRUCTURAL INTEGRITY OF THE GEOGRID REINFORCEMENT. PROPERTY OWNERS SHOULD BE MADE AWARE THAT DISTURBANCE OF THE GEOGRID REINFORCEMENT WILL IMPACT THE STABILITY OF THE WALL.

1.3 SUBMITTALS: PROVIDE SUBMITTALS TO ENGINEER ON THE SCHEDULE INDICATED FOR EACH ITEM FOR APPROVAL.

A. SUBMIT QUALITY CONTROL ITEMS WITHIN 15 BUSINESS DAYS FOR APPROVAL AS FOLLOWS:

1. PROVIDE CURRENT CERTIFICATION THAT EACH GEOSYNTHETIC MATERIAL MEETS MARV REQUIREMENTS OF THE SPECIFICATION AS EVALUATED UNDER THE MANUFACTURER'S QUALITY CONTROL PROGRAM.
   a. EACH CERTIFICATION SHALL INCLUDE:
      THE NAME OF THE MANUFACTURER
      PRODUCT NAME
      STYLE NUMBER
      BATCH NUMBER
      CHEMICAL COMPOSITION OF THE FILAMENTS OR YARNS
2. PROVIDE TO THE WALL ENGINEER THE MANUFACTURER'S CURRENT QUALITY CONTROL PLAN CERTIFICATIONS FOR A2LA, GAI-LAP, OR ISO 9001.

B. PROVIDE CURRENT CERTIFICATION OF MILL REPORTS FOR STEEL PRODUCTS.

C. PROVIDE CURRENT CERTIFICATION OF GALVANIZATION PRODUCTS AND PROCEDURES.

1.4 QUALITY CONTROL

A. GEOSYNTHETIC MANUFACTURING QUALITY CONTROL: CERTIFY THAT GEOSYNTHETIC MATERIAL TESTING PERFORMED BY A LABORATORY ACCREDITED BY GAI-LAP OR A2LA FOR REQUIRED TESTS.

B. CERTIFY THAT ULTRAVIOLET STABILITY VERIFIED BY AN INDEPENDENT LABORATORY ON THE GEOSYNTHETIC OR A GEOSYNTHETIC OF SIMILAR CONSTRUCTION AND YARN TYPE.

C. TEST STRIP:

1. LABORATORIES CANNOT EASILY TEST THE REINFORCING FILL PER TRADITIONAL METHODS FOR MAXIMUM DENSITY. CONTRACTOR SHALL WORK WITH ENGINEER AND GEOTECHNICAL TECHNICIAN TO CONSTRUCT A TEST STRIP TO DETERMINE THE TARGET MAXIMUM DRY DENSITY FOR COMPACTION TESTING.
   a. PLACE A LIFT OF FILL IN TEST STRIP AREA (MAY BE PRODUCTION AREA). TEST AREAS SHALL BE COMPACTED USING COMPACTION EQUIPMENT INTENDED TO BE USED DURING PRODUCTION.
2. PREPARE AND TEST UP TO FOUR LOCATIONS IN TEST STRIP AREA TO DETERMINE MAXIMUM DRY DENSITY USING WATER REPLACEMENT METHOD. CONTRACTOR SHALL ALSO PROVIDE CONSTRUCTION EQUIPMENT TO BE USED TO ASSIST GEOTECHNICAL TECHICIAN IN RUNNING PLATE LOAD TESTS (ASTM D 1196) AT DESIGNATED LOCATIONS IN THE TEST STRIP AREAS. THE REQUIRED ALLOWABLE BEARING CAPACITY SHALL BE A MINIMUM 3,000 PSF WITH A FACTOR OF SAFETY = 2.
3. ADDITIONALLY, IN-PLACE DENSITY SHALL BE DETERMINED USING NUCLEAR GAUGE PLACED ON BACKSCATTER SETTING IN NO LESS THAN FIVE ADDITIONAL LOCATIONS.
4. THE AVERAGE IN-PLACE DENSITY RECORED IN STEPS C.1.a.1 AND C.1.a.2 SHALL BE THE LIFT'S IN-PLACE DESITY
   b. COMPACT THE TEST STRIP AGAIN WITH 2 PASSES OF A COMPACTOR AND RETEST AS IN STEP C.1.a.
   c. RECORD THE VALUES AND REPEAT STEP b UNTIL ADDITIONAL PASSES DO NOT INCREASE THE DRY DENSITY. THE MINIMUM DRY DENSITY DETERMINED BY THE TEST STRIP SHALL BE THE TARGET DENSITY FOR COMPACTION TESTING. THE MINIMUM NUMBER OF PASSES BY COMPACTION EQUIPMENT TO MEET THIS DENSITY SHALL BE USED AS A GUIDELINE FOR SUCCESSIVE FILL PLACEMENT.

D. COMPACTIVE EFFORT OF SUCCESSIVE LIFTS SHALL, AT A MINIMUM, EQUAL THE NUMBER OF PASSES DETERMINED DURING THE TEST STRIP. ONCE INSTALLED, THE ONSITE ENGINEERING REPRESENTATIVE SHALL PERFORM A MINIMUM OF 10 IN-PLACE DENSITY TESTS (RANDOMLY LOCATED) USING A NUCLEAR GAUGE PLACED ON BACKSCATTER SETTING. THE AVERAGE OF THE 10 READINGS WILL BE IN-PLACE DENSITY OF THE COMPACTED LIFT. IF IN-PLACE DENSITY DOES NOT MEET OR EXCEED THAT ESTABLISHED DURING DEVELOPMENT OF ROLL PATTERN, ADDITIONAL COMPACTIVE EFFORT WILL BE REQUIRED. IF AFTER 4 ADDITIONAL PASSES, THE COMPACTED FILL DOES NOT MEET THE DENSITY DETERMINED IN THE TEST STRIP, THE ENGINEER SHALL BE NOTIFIED TO DETERMINE WHETHER A NEW TEST STRIP/ROLL PATTERN NEEDS TO BE PERFORMED/DEVELOPED.

1.5 QUALITY ASSURANCE

A. MANUFACTURER QUALIFICATIONS: THE GEOSYNTHETIC MANUFACTURER SHALL HAVE ONE OF THE FOLLOWING CURRENT CREDENTIALS:

1. GEOSYNTHETIC ACCREDITATION INSTITUTE (GAI) - LABORATORY ACCREDITATION PROGRAM (LAP)
2. AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION (A2LA)
3. ISO 9001 QUALITY MANAGEMENT SYSTEM

B. A GAI-LAP ACCREDITED LABORATORY SHALL PERFORM ROUTINE TESTS OF THE GEOSYNTHETIC MANUFACTURER'S PRODUCTS.

1.6 DELIVERY, STORAGE, AND HANDLING

A. GEOSYNTHETIC LABELING, SHIPMENT, AND STORAGE SHALL FOLLOW ASTM D4873. PRODUCT LABELS SHALL CLEARLY SHOW THE MANUFACTURER OR SUPPLIER NAME, STYLE NAME, AND ROLL NUMBER. GEOGRID SHALL BE MARKED WITH PRODUCT TYPE AND TENSILE STRENGTH ORIENTATION CONTINUOUSLY ALONG ENTIRE ROLL EDGE.

B. WRAP EACH GEOSYNTHETIC ROLL WITH A MATERIAL THAT WILL PROTECT THE GEOSYNTHETIC FROM DAMAGE DUE TO SHIPMENT, WATER, SUNLIGHT, AND CONTAMINANTS.

C. DURING STORAGE, ELEVATE GEOSYNTHETIC ROLLS OFF THE GROUND AND ADEQUATELY COVERED TO PROTECT THEM FROM SITE CONSTRUCTION DAMAGE, PRECIPITATION, SUNLIGHT, CHEMICALS, FLAMES, SPARKS, EXCESS TEMPERATURES, AND ANY OTHER ENVIRONMENTAL CONDITIONS THAT MAY DAMAGE THE PHYSICAL PROPERTY VALUES OF THE GEOSYNTHETIC.

PART 2 PRODUCTS

2.1 GEOSYNTHETIC MATERIAL

A. TENCATE GEOSYNTHETICS AMERICAS
365 SOUTH HOLLAND DRIVE
PENDERDRASS, GA, USA 30567
1-800-685-9990
1-706-693-2226
1-706-693-2083, FAX
WWW.MIRAFI.COM

B. MATERIALS

1. APPROVED GEOGRID IS TENCATE MIRAGRID 24XT AND MIRAGRID 10XT AS INDICATED ON THE PLANS.
2. APPROVED GEOTEXTILE FACING IS MIRAMESH.
3. MANUFACTURER SHALL LABEL APPROVED GEOGRIDS WITH PRODUCT TYPE. APPROVED GEOGRID MANUFACTURER SHALL BE TESTED BY A GAI LABORATORY AND SHALL BE MADE IN NORTH AMERICA.
4. GEOSYNTHETICS SHALL RETAIN A MINIMUM OF 70% OF THE ULTIMATE TENSILE STRENGTH PER ASTM D4595 AFTER UV EXPOSURE.

2.2 ULTRA-VIOLET LIGHT (UV) OR SUNLIGHT BARRIER

A. UV BARRIER SHALL CONSIST OF PLANTABLE FILL WITHIN THE EXPOSED PORTION OF THE WRAP FACE TO ALLOW PERMANENT VEGETATION.

B. PERMANENT VEGETATION OF THE STEEPENED SLOPE SHALL BE SET WITH APPROVED HYDROSEED MIXTURE AND METHOD.

2.3 WELDED WIRE FACING:

1. WIRE FACING UNITS SHALL BE WIRE WALL SYSTEM AS MANUFACTURED BY TENCATE, WITH ASTM A-82 WIRE. THE MESH CONFIGURATION SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS. THE MESH SHALL BE FORMED BY WELDING THE WIRES IN ACCORDANCE WITH ASTM A-185 AND BENT AS NECESSARY TO ACHIEVE THE BASKET SHAPE OF THE UNITS.
2. BRACING COMPONENTS SHALL BE 0.24 INCH DIAMETER ELECTROPLATED WIRE LOCKING TAIL STRUTS AS PER CONSTRUCITON DRAWINGS AND DETAILS.

2.4 REINFORCED FILL MATERIAL

1. ALL RETAINING WALL BACKFILL AND EMBANKMENT FILLS SHALL BE BENCHED INTO EXISTING SLOPE.

REINFORCED FILL SHALL CONSIST WELL GRADED, CLEAN, ON-SITE OR IMPORTED SOILS, FREE FROM FOREIGN DEBRIS WHICH ARE READILY COMPACTABLE, AND WHOSE STRENGTH CHARACTERISTICS AND UNIT WEIGHT SATISFY THOSE PRESENTED ON THIS DRAWING.

THE DESIGN PRESENTED ON THIS DRAWING WAS BASED ON THE FOLLOWING SOIL PARAMETERS:

FOUNDATION SOIL:	SOIL UNIT WEIGHT = 128 PCF
	SOIL FRICTION ANGLE = 28°
	SOIL COHESION = 0 PSF
RETAINED SOIL:	SOIL UNIT WEIGHT = 129 PCF
	SOIL FRICTION ANGLE = 28°
	SOIL COHESION = 0 PSF
REINFORCED BACKFILL:	SOIL UNIT WEIGHT = 120 PCF
	SOIL FRICTION ANGLE = 34°
	SOIL COHESION = 0 PSF

ALL SOIL PARAMETERS AND NET ALLOWABLE BEARING PRESSURE OF 3,000 PSF SHALL BE CONFIRMED BY THE OWNER'S GEOTECHNICAL ENGINEER PRIOR TO THE CONSTRUCTION OF THE RETAINING WALLS.

PERFORM GRADATION AND ATTERBERG LIMITS TESTING PRIOR TO CONSTRUCTION AND AT REGULAR INTERVALS DURING CONSTRUCTION PER ASTM D422 AND ASTM D4318 TO VERIFY BACKFILL TYPES MEET MINIMUM PROJECT REQUIREMENTS.

PERFORM SOIL SHEAR STRENGTH TESTS PER ASTM D3080 TO VERIFY SOIL ANGLE OF INTERNAL FRICTION (PHI ANGLE) FOR REINFORCED BACKFILL. FOR THE REINFORCED BACKFILL ZONE, THE PLASTICITY INDEX (P.I.), AS DETERMINED BY AASHTO T-90, SHALL NOT EXCEED 6 (PER REINFORCED EARTH ABBREVIATED TECHNICAL SPECIFICATIONS FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS) WITH A GRADATION SUCH THAT 100% PASSES 4-INCH SIEVE, 75%-100% PASSES 3-INCH SIEVE, AND LESS THAN 15% PASSES #200 SIEVE.

THE OWNER OR CONTRACTOR SHALL RETAIN A GEOTECHNICAL ENGINEER TO VERIFY EXISTING SOIL CONDITIONS AND TO ENSURE THAT THE WALL IS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. FAILURE TO PERFORM THE TESTING AND INSPECTIONS STATED HEREIN WILL RELEASE THE ENGINEER FROM THIS DESIGN. TESTING AND INSPECTION REPORTS SHALL BE PROVIDED TO THE ENGINEER. REPORTS SHOULD ADDRESS NOT ONLY TEST RESULTS BUT VERIFICATION OF MATERIAL TYPES AND CONSTRUCTION DETAILS INCLUDING GRID LENGTHS, LOCATIONS, AND INSTALLATION PROCEDURES. ANY DISCREPANCIES FROM THE CONTRACT DOCUMENTS SHOULD BE REPORTED TO THE ENGINEER.

PROVIDE WALL ENGINEER WITH MATERIAL REPORTS BEFORE CONSTRUCTION AND INSPECTION REPORTS FOR REVIEW OF DESIGN CONFORMANCE.

PART 3 EXECUTION

3.1 VERIFY

A. CHECK THAT FOUNDATION AND BEARING AREA ARE READY FOR WALL INSTALLATION (PROPERLY CLEARED AND GRUBBED, ALL STUMPS, ORGANIC MATERIAL, DEBRIS, AND DELETERIOUS MATERIAL REMOVED. REPORT UNSUITABLE CONDITIONS TO ENGINEER IN WRITING.

3.2 PREPARATION

A. EXCAVATE FOUNDATION SOIL TO THE LINE AND GRADES AS SHOWN ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE ENGINEER. OVER-EXCAVATED AREAS SHALL BE FILLED WITH COMPACTED BACKFILL MATERIAL AS PER PROJECT SPECIFICATIONS OR AS DIRECTED BY THE ENGINEER. AS A MINIMUM, FOUNDATION SOIL SHALL BE PROOF ROLLED PRIOR TO BACKFILL AND GEOSYNTHETIC PLACEMENT.

3.3 INSTALLATION

A. PLACE THE WELDED WIRE FACING PANELS ALONG WALL LAYOUT LINE, AS SHOWN ON THE CONSTRUCTION DRAWINGS. ALIGN EACH BASKET WITH NO OVERLAPS UNLESS SHOWN ON PLANS. CONNECT ADJACENT BASKETS AND INSTALL WIRE STRUTS FROM HORIZONTAL LEG UP TO VERTICAL LEG. USE A RUNNING BOND PATTERN ON UPPER WIRE FACING PANEL LIFTS TO AVOID A STACKED WALL JOINT CONDITION.

B. GEOSYNTHETIC MATERIAL BREAKS DOWN WHEN EXPOSED TO UV LIGHT. LIMIT MAXIMUM EXPOSURE TO UV LIGHT TO 14 CALENDAR DAYS OR LESS.

C. PLACE THE GEOGRID AT THE PROPER ELEVATION AND ORIENTATION AS SHOWN ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE ENGINEER. ENGINEER (OR ENGINEER'S REPRESENTATIVE) SHALL VERIFY AND DOCUMENT CORRECT ORIENTATION OF THE GEOSYNTHETIC. CUT THE GEOSYNTHETIC TO LENGTH AS SHOWN ON THE CONSTRUCTION DRAWINGS.

D. PLACE ONLY THE AMOUNT OF GEOGRID REQUIRED FOR IMMEDIATELY PENDING WORK TO PREVENT UNDUE DAMAGE AND UV EXPOSURE.

A. GEOGRID MAY NOT BE OVERLAPPED OR CONNECTED MECHANICALLY TO FORM SPLICES. SINGLE PANEL LENGTHS ARE REQUIRED IN THE PRIMARY STRENGTH DIRECTION (ROLL DIRECTION) PERPENDICULAR TO WALL OR SLOPE FACE. POSITION ADJACENT ROLLS ALONG ROLL EDGES, NO OVERLAPPING IS REQUIRED BETWEEN ADJACENT ROLLS UNLESS SPECIFIED BY THE ENGINEER. A MINIMUM SOIL COVER OF 3 INCHES IS REQUIRED BETWEEN GEOGRID OVERLAP LAYERS.

B. ENGINEER'S SUGGESTED INSTALLATION PROCEDURE FOR EACH LIFT OF WRAPPED RETAINING WALL.

1. AFTER PLACING AND SECURING THE FACING UNITS AND LAYING OUT THE GEOGRID, INSTALL A TEMPORARY RESERVE BETWEEN THE FACING UNIT AND THE GEOGRID TO ALLOW PLACING THE UV BARRIER. PROVIDE A MINIMUM RESERVE WIDTH OF 12 INCHES. THE UV BARRIER RESERVE MAY CONSIST OF UV BARRIER COBBLES AND BOULDERS OR REMOVABLE FORM.
2. PLACE GEOTEXTILE FILTER FABRIC PARALLEL TO THE FACING UNITS SO THAT THE HILL- SIDE EDGE IS ABOUT 4 FEET BEHIND FACING UNITS. DRAPE FILTER FABRIC OVER THE FACING UNITS AND UV BARRIER RESERVE.
3. DRAPE GEOGRID LEADING EDGE OVER THE FACING UNIT, RESERVE, AND FILTER FABRIC, EXTENDING THE GEOGRID FAR ENOUGH FOR ADEQUATE WRAP LENGTH AS SHOWN ON THE DRAWINGS. PLACE GEOGRID SMOOTHLY AND FREE OF WRINKLES AND LYING FLAT. TEMPORARILY SECURE GEOGRID IN-PLACE WITH STAPLES, PINS, SAND BAGS, OR BACKFILL.
4. PLACE AND COMPACT A LAYER OF REINFORCING FILL, SLOPE THE END OF THE FILL ADJACENT TO THE FACING UNIT AT ABOUT 1:1 TO ALLOW ROOM FOR UV BARRIER ATOP GEOGRID. UNDRAPE AND WRAP THE GEOGRID AND FILTER FABRIC OVER THE COMPACTED REINFORCING FILL AND REMOVE TEMPORARY RESERVE (IF USED).
5. PLACE THE UV BARRIER BETWEEN FACING UNITS AND FILTER FABRIC AND GEOGRID SO THAT IT COMPLETELY COVERS THE GEOGRID.
6. REPEAT FOR EACH FOLLOWING LIFT.

E. REINFORCING FILL PLACEMENT

1. PLACE REINFORCING FILL IN MAXIMUM 9 INCH COMPACTED LIFTS.
2. COMPACT EACH LIFT TO THE DENSITY AS ESTABLISHED BY THE ROLL PATTERN. COMPACT REINFORCING FILL WITHIN 3 FEET OF THE WALL FACE WITH HAND EQUIPMENT.
3. PLACE, SPREAD AND COMPACT REINFORCING FILL IN SUCH A MANNER AS TO MINIMIZE THE DEVELOPMENT OF WRINKLES IN AND/OR MOVEMENT OF THE GEOGRID.
4. PLACE REINFORCING FILL IN SUCH A MANNER AS TO MINIMIZE THE DISTURBANCE OR MISALIGNMENT OF THE WALL FACING.
5. PROVIDE A MINIMUM FILL THICKNESS OF 6 INCHES PRIOR TO THE OPERATION OF VEHICLES OVER THE GEOGRID.

H. RETAINING WALL DRAINAGE

1. INTERNAL DRAINAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THESE CONSTRUCTION DRAWINGS AT THE LOCATIONS AND ELEVATIONS SHOWN ON CROSS SECTIONS AND DETAILS. THE INTERNAL DRAINAGE SYSTEM IS INTENDED TO CONTROL GROUNDWATER SEEPAGE IN THE RETAINING WALL REINFORCED ZONE. THE INTERNAL DRAINAGE SYSTEM IS NOT INTENDED TO ACCOMMODATE SURFACE WATER INFILTRATION THAT OCCURS DUE TO IMPROPER CONTROL OF SURFACE WATER DURING AND AFTER CONSTRUCTION.
2. EXTERNAL DRAINAGE CONTROL MEASURES MUST BE CONSTRUCTED AND MAINTAINED DURING THE CONSTRUCTION OF THE RETAINING WALL(S). AT THE END OF EACH WORK DAY, THE RETAINING WALL CONSTRUCTOR SHALL GRADE THE SURFACE OF THE LAST LIFT OF THE REINFORCED BACKFILL SUCH THAT THE SURFACE WATER IS DIRECTED AWAY FROM THE RETAINING WALL(S).
3. THE GENERAL CONTRACTOR SHALL PROTECT THE RETAINING WALL WORK AREA FROM SURFACE WATER AT ALL TIMES BY THE USE OF BERMS, DIVERSION DITCHES, TEMPORARY DRAINS, SILT FENCING, AND ALL OTHER MEANS THAT MAY BE REQUIRED.
4. THE PONDING OF WATER ABOVE OR WITHIN TWENTY (20) FEET OF THE REINFORCED ZONE DURING OR AFTER WALL CONSTRUCTION SHALL NOT BE PERMITTED.
5. THE GROUND SURFACE ABOVE AND BELOW THE RETAINING WALL SHALL BE PROTECTED AGAINST EROSION DURING AND AFTER CONSTRUCTION BY OTHERS (SEE ALSO POST-CONSTRUCTION CARE).
6. IT IS THE RESPONSIBILITY OF THE CIVIL ENGINEER TO PROPERLY DESIGN THE SITE DRAINAGE AND GRADING TO PREVENT EROSION OF THE RETAINING WALL BACKFILL AND FOUNDATION, AND INFILTRATION INTO THE RETAINING WALL BACKFILL. THE RETAINING WALL CONTRACTOR WILL BE RESPONSIBLE FOR DAILY DRAINAGE CONTROL MEASURES WITHIN THE RETAINING WALL REINFORCED ZONE. THE GENERAL AND EARTHWORK CONTRACTORS SHALL BE RESPONSIBLE FOR SITE DRAINAGE OUTSIDE THIS AREA AND ITS EFFECTS ON THE RETAINING WALL CONSTRUCTION AND PERFORMANCE DURING AND AFTER CONSTRUCTION.

I. UTILTIES

1. ALL NEW UTILITIES LOCATED WITHIN THE RETAINING WALL REINFORCED ZONE OR LOCATED ADJACENT TO THE RETAINING WALL REINFORCED ZONE SHALL BE INSTALLED AS THE RETAINING WALL REINFORCED BACKFILL IS BEING PLACED.
2. UTILITIES TO BE INSTALLED IN THE VICINITY OF THE WALL, SUCH AS LIGHT POLES, HAND RAILS, GUARD RAILS, AND/OR DRAINAGE STRUCTURES, MUST BE DESIGNED AND CONSTRUCTED SO THAT THEY DO NOT ADD LATERAL FORCES TO THE WALL SYSTEM. ALSO, ANY EXCAVATION, SUCH AS INSTALLATION OF CONCRETE GUTTERS, SHRUB AND TREE PLANTING, ETC., CONDUCTED IN THE VICINITY OF THE WALL AFTER THE WALL HAS BEEN CONSTRUCTED MUST BE DONE WITHOUT DAMAGING THE WALL OR REINFORCEMENT MATERIALS.
3. UTILITIES THAT ARE CONSTRUCTED INSIDE THE RETAINING WALL REINFORCED ZONE SHALL BE PLACED IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS. PROPER CARE MUST BE TAKEN TO INSURE THAT THE PIPE JOINTS ARE WATER TIGHT, AND THAT ALL PIPES ARE PLACED ON PROPERLY COMPACTED SOILS.

J. QUALITY CONTROL OF PLACED FILL SHALL CONFORM TO RSS NOTES 1.3.D

K. MINIMIZE TURNING OF TRACKED VEHICLES TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING THE GEOGRID. RUBBER TIRED EQUIPMENT MAY PASS OVER THE GEOSYNTHETIC REINFORCEMENT AT LOW SPEEDS, LESS THAN 5 MPH. AVOID BRAKING AND TURNS. CONTRACTOR SHALL REPLACE ANY GEOGRID DAMAGED DURING INSTALLATION AT NO ADDITIONAL COST TO THE OWNER.

L. SLOPE SURFACE OF REINFORCING FILL TO DRAIN AWAY FROM THE WALL FACE AND TO PREVENT WATER PONDING UPON THE SURFACE OF THE REINFORCING FILL. PROVIDE DITCHES AND FLOW PATHS, AS NEEDED, TO KEEP THE SITE DRAINED. MAINTAIN THE SITE AREA TO PREVENT STORMWATER OR SURFACE WATER FLOW FROM ADJACENT AREAS FROM ENTERING THE WALL AREA.

M. POST CONTRUCTION CARE.

1. NO EXCAVATION THROUGH LAYERS OF SOIL REINFORCEMENT SHALL BE PERMITTED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE RETAINING WALL DESIGN ENGINEER OF RECORD.
2. INSTALLATION OF IRRIGATION LINES ABOVE THE REINFORCED ZONE OR WITHIN TEN (10) FEET OF THE WALL TOE IS NOT PERMITTED WITHOUT PRIOR WRITTEN APPROVAL OF THE RETAINING WALL ENGINEER OF RECORD.
3. MATERIAL STOCKPILES MUST BE KEPT A MINIMUM OF TEN (10) FEET FROM THE FRONT FACE OF THE RETAINING WALL
4. PROPER SURFACE WATER CONTROL AND DIVERSION OF WATER AWAY FROM THE RETAINING WALL MUST BE MAINTAINED AT ALL TIMES. ALL TOE AND CREST SLOPES SHALL BE VEGETATED AND PROTECTED AGAINST EROSION AS SOON AS POSSIBLE FOLLOWING CONSTRUCTION.
5. THE RETAINING WALL DESIGN ENGINEER OF RECORD SHALL BE CONTACTED TO REVIEW ANY REQUIRED POST WALL CONSTRUCTION UTILITY PLACEMENT IN THE VICINITY OF THE WALL. EXCAVATION IN AND AROUND THE WALL MAY DAMAGE THE COMPONENTS OR COMPROMISE THE INTEGRITY OF THE STRUCTURE AND MUST BE EVALUATED BY THE RETAINING WALL DESIGN ENGINEER OF RECORD
6. ANY INCIDENTS THAT MAY CAUSE DAMAGE OR COULD AFFECT THE LONG-TERM PERFORMANCE OF THE RETAINING WALL MUST BE REPORTED TO THE RETAINING WALL DESIGN ENGINEER OF RECORD IMMEDIATELY.

REVISIONS:

WSP USA ENVIRONMENT & INFRASTRUCTURE
245 N. WACO AVENUE, SUITE 110
WICHITA, KANSAS 67202
PHONE: 316-448-2711
FAX: 316-448-2711

REINFORCED SOIL SLOPE WALL DETAIL STR-001

IMHOFF CREEK BANK STABILIZATION
CITY OF NORMAN, OKLAHOMA

DESIGNED BY: ---
DRAWN BY: ACG
CHECKED BY: EJB
DATE: Mar 22, 2024

LICENSED PROFESSIONAL ENGINEER
ERIC J. BROCE
25083
3-22-24
OKLAHOMA

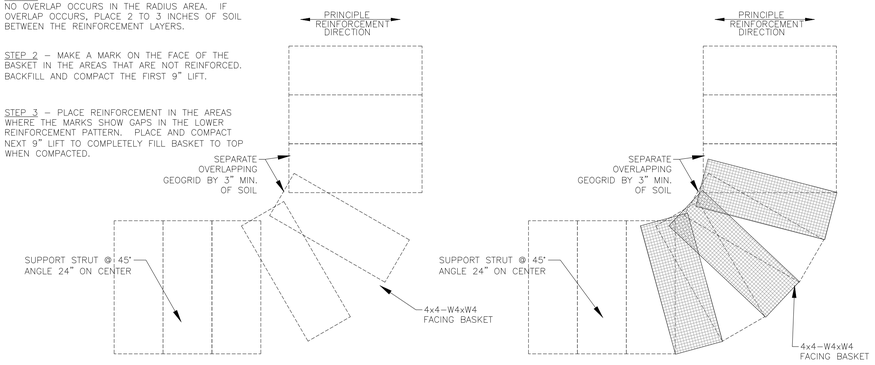
PROJECT NO.
8275000431

SHEET NO.
27 OF 30

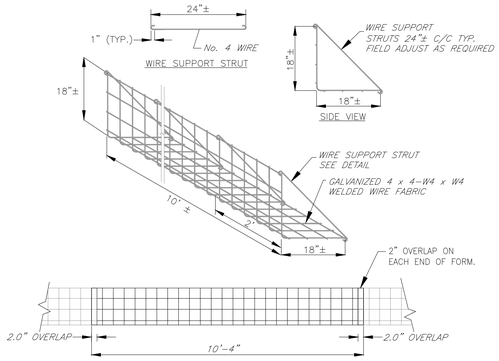
STEP 1 – PLACE REINFORCEMENT SO LITTLE OR NO OVERLAP OCCURS IN THE RADIUS AREA. IF OVERLAP OCCURS, PLACE 2 TO 3 INCHES OF SOIL BETWEEN THE REINFORCEMENT LAYERS.

STEP 2 – MAKE A MARK ON THE FACE OF THE BASKET IN THE AREAS THAT ARE NOT REINFORCED. BACKFILL AND COMPACT THE FIRST 9" LIFT.

STEP 3 – PLACE REINFORCEMENT IN THE AREAS WHERE THE MARKS SHOW GAPS IN THE LOWER REINFORCEMENT PATTERN. PLACE AND COMPACT NEXT 9" LIFT TO COMPLETELY FILL BASKET TO TOP WHEN COMPACTED.

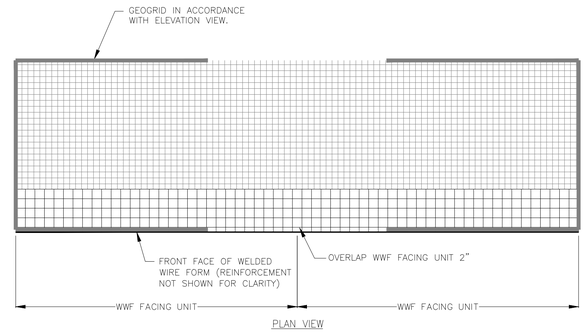


1/28 OUTSIDE CURVE DETAIL
(SCALE: N.T.S.)



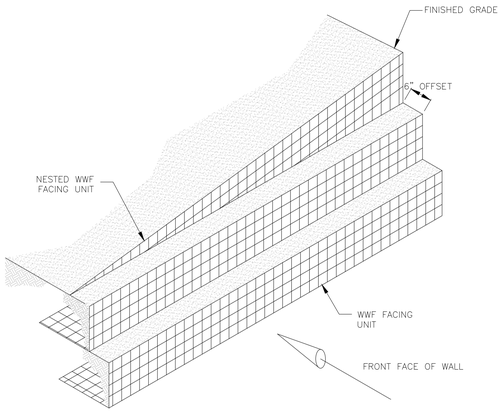
NOTES:
1. RSS FACING TO CONSIST OF PREFABRICATED GALVANIZED STEEL WELDED WIRE FABRIC, 4x4–W4xW4 FORMS.
2. OVERALL LENGTH OF WIRE FORMS IS 10'–4"±. EFFECTIVE CONSTRUCTED WIDTH IS 10 FT WITH 2" OVERLAPPING ON EACH END OF FORM.
3. FORMS AS MANUFACTURED BY DIMENSION FABRICATORS, INC. OR APPROVED EQUAL.

2/28 ELEVATION VIEW DETAIL
(SCALE: N.T.S.)

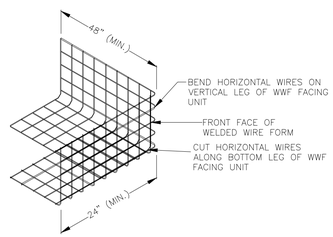


NOTES:
1. SEE WELDED WIRE FORM (WWF) FACING UNIT DETAIL FOR FACING MATERIALS AND DIMENSIONS.
2. INSTALL ADJACENT WWF FACING UNITS TO PROVIDE 2" OVERLAP OF HORIZONTAL WIRES.
3. WHEN MSE LAYOUT INCLUDES A CORNER/TURN, FULL GEOGRID COVERAGE IS REQUIRED. REFER TO ELEVATION VIEW FOR LIMITS OF FULL GEOGRID COVERAGE.

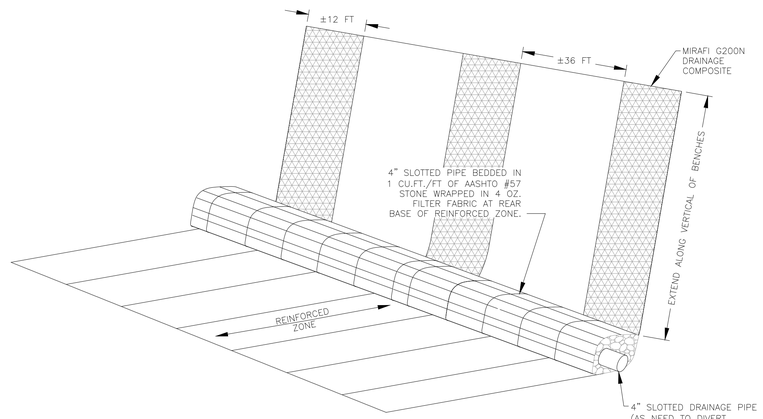
3/28 TYPICAL WWF GEOGRID COVERAGE
(NOT TO SCALE)



4/28 TOP OF WWF WALL NESTING DETAIL
(NOT TO SCALE)



5/28 WELDED WIRE FORM
OUTSIDE CORNER UNIT
(NOT TO SCALE)



6/28 REAR DRAINAGE SYSTEM
(NOT TO SCALE)

WSP USA ENVIRONMENT & INFRASTRUCTURE
245 N. WACO AVENUE, SUITE 110
WICHITA, KANSAS 67202
PHONE: 316-448-2711
FAX: 316-448-2711

REVISIONS:

REINFORCED SOIL SLOPE WALL DETAIL STR-002

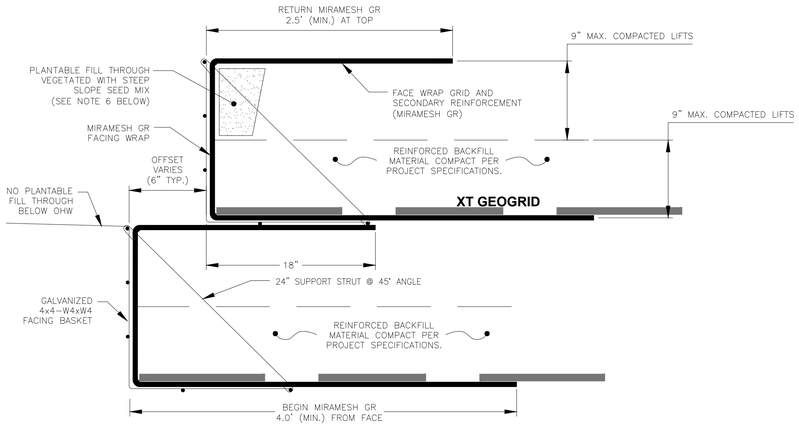
IMHOFF CREEK BANK STABILIZATION
CITY OF NORMAN, OKLAHOMA

DESIGNED BY: ----
DRAWN BY: ACG
CHECKED BY: EJB
DATE: Mar 22, 2024

PROFESSIONAL ENGINEER
ERIC J. BROCE
25093
5-17-24
OKLAHOMA

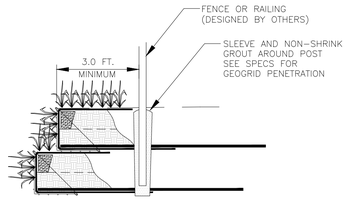
PROJECT NO.
8275000431

SHEET NO.
28 OF 30

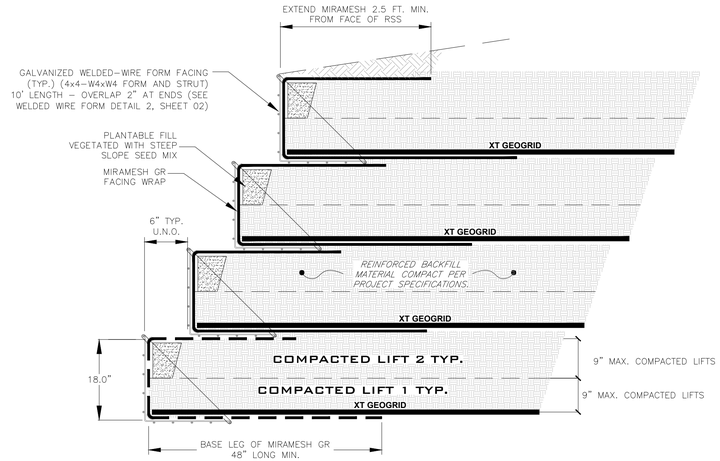


NOTE:
PLACE WELDED WIRE FORMS AS NEEDED TO CREATE THE PROPER SLOPE GEOMETRY.

1/29 PLANTABLE FACING DETAIL BLOW–UP
(SCALE: N.T.S.)



2/29 TYPICAL FENCE DETAIL
(SCALE: N.T.S.)



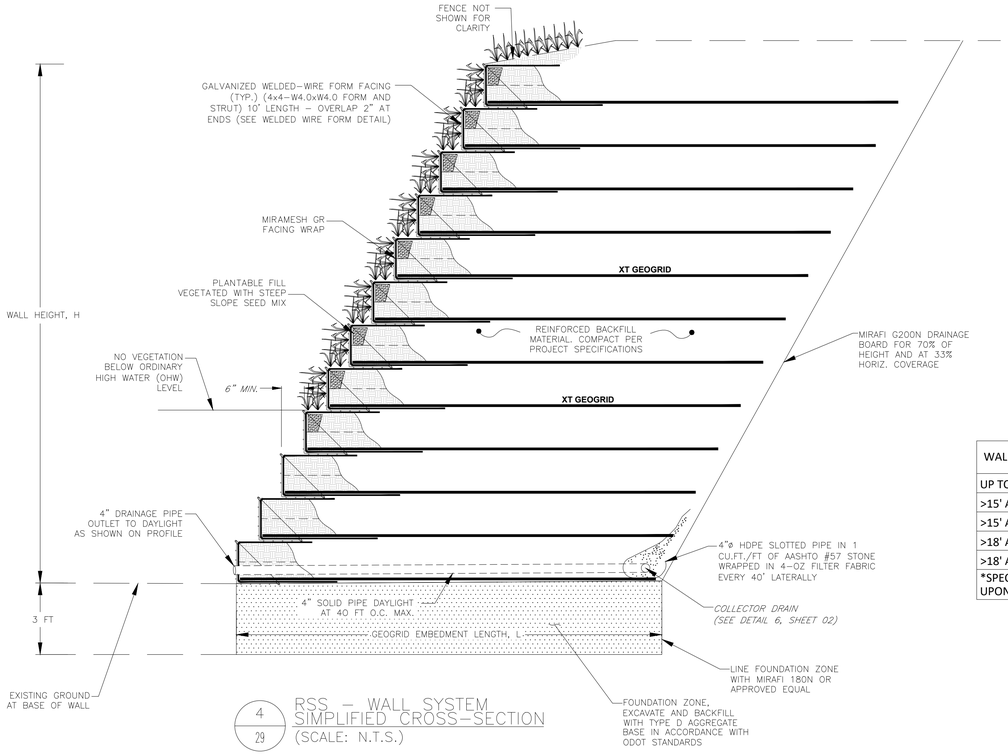
NOTES:
1. FACING TO CONSIST OF PREFABRICATED WWF, 4x4–W4xW4.
2. OVERALL LENGTH OF WIRE FORMS IS 10'–4"±.

3/29 TYPICAL DIMENSIONS AND SETBACK DETAIL
(SCALE: N.T.S.)

GENERALIZED CONSTRUCTION SEQUENCE:

1. SET WELDED WIRE FORM AT CORRECT ELEVATION AND ALIGNMENT PER PLAN GEOMETRY.
2. INSTALL WIRE STRUTS IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
3. PLACE MIRAMESH GR AT FACE OF FORM TO PROVIDE A 48" HORIZONTAL BASE LENGTH, LAY MIRAMESH GR UP REAR FACE OF WELDED WIRE FORM, AND TEMPORARILY DRAPE REMAINING 30" LENGTH OF MIRAMESH GR OVER THE FRONT OF THE FORM. CUT SMALL SLOTS AS NECESSARY TO ACCOMMODATE STRUTS.
4. PLACE AND COMPACT A 9" THICK (FINAL COMPACTED LIFT THICKNESS) LAYER OF PROCESSED BACKFILL MATERIAL PER PROJECT SPECIFICATIONS. CARE SHALL BE TAKEN TO ENSURE ADEQUATE COMPACTION AT WALL FACE.
5. PLACE AND COMPACT THE FINAL LAYER OF PROCESSED BACKFILL MATERIAL FOR THIS WIRE FORM PER PROJECT SPECIFICATIONS, LEAVING A TROUGH DIRECTLY BEHIND THE WELDED WIRE FORM TO ACCOMMODATE THE GROWTH MEDIUM (PLANTABLE FILL).
6. PLACE PLANTABLE FILL AND STEEP SLOPE SEED MIX INTO TROUGH. BASE OF TROUGH SHALL BE NO LESS THAN 4" WIDE, TOP OF TROUGH SHALL BE 6" WIDE. TROUGH SHALL BE 9" HIGH SO VEGETATION OCCURS IN TOP HALF VERTICALLY AND ON THE 9" HORIZONTAL BENCH OF THE WELDED WIRE FORM. COMPACT PLANTABLE FILL IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
7. FOLD BACK MIRAMESH AND PULL TAUGHTLY OVER THE TOP OF BACKFILLED WELDED WIRE FORM WITH A MINIMUM HORIZONTAL RETURN OF 30".
8. SET THE NEXT WELDED WIRE FORM PER HORIZONTAL AND VERTICAL PLAN GEOMETRY AND REPEAT STEPS 2–7 ABOVE.
9. ORDINARY HIGH WATER (OHW) LEVEL VARIES AS FOLLOWS:

STATION TO STATION	DOWNSTREAM EL.	UPSTREAM EL.
16+40 TO 17+50	1097.23	1097.69
22+00 TO 31+05	1097.77	1100.64



4/29 RSS – WALL SYSTEM
SIMPLIFIED CROSS–SECTION
(SCALE: N.T.S.)

WALL HEIGHT, H (FT)	GEOGRID EMBEDMENT LENGTH, L (FT)	GEOGRID LOCATION, MEASURED FROM BOTTOM OF WALL (FT)	GEOGRID*
UP TO 15'	9	1.5, 3, 4.5, 6, 9, 12	MIRAFI 5XT
>15' AND UP TO 18'	16	1.5, 4.5, 6	MIRAFI 20XT
>15' AND UP TO 18'	12	7.5, 10.5, 13.5, 16.5, 19.5	MIRAFI 5XT
>18' AND UP TO 22'	16	1.5, 3, 4.5, 6, 7.5	MIRAFI 20XT
>18' AND UP TO 22'	12	9, 12, 15, 18, 21	MIRAFI 7XT
*SPECIFIED GEOGRID SIZES ARE AS PRODUCED BY TENCATE. EQUIVALENT GEOGRID MAY BE SUBSTITUTED UPON APPROVAL OF THE ENGINEER.			

REVISIONS:

WSP USA ENVIRONMENT & INFRASTRUCTURE
245 N. WACO AVENUE, SUITE 110
WICHITA, KANSAS 67202
PHONE: 316-448-2711
FAX: 316-448-2711

REINFORCED SOIL SLOPE WALL DETAIL STR-003

IMHOFF CREEK BANK STABILIZATION
CITY OF NORMAN, OKLAHOMA

DESIGNED BY: ---
DRAWN BY: ACG
CHECKED BY: EJB
DATE: Mar 22, 2024

LICENSED PROFESSIONAL ENGINEER
ERIC J. BRODE
25093
3-22-24
OKLAHOMA

PROJECT NO.
8275000431

SHEET NO.
29 OF 30

Last Saved by: USAG715861 Plotted By: Gutierrez, Angela Plot Date/Time: 3/21/2024 2:16 PM
File: X:\US\USICT200-WCH\Projects\8275000431_Imhoff Creek Bank Stabilization\05_CAD\Details\02 Production Drawings\DTL-03.dwg

GENERAL NOTES

1. NOTIFY OKLAHOMA 811 ONE-CALL. CONFIRM THE LOCATIONS OF ALL SURFACE OR SUBSURFACE FEATURES, INCLUDING UTILITIES, WHICH HAVE A BEARING UPON THE PROPOSED CONSTRUCTION PRIOR TO BEGINNING CONSTRUCTION. VERIFY THE LOCATION OF ALL EXISTING UTILITIES AND REPORT ANY DISCREPANCIES IMMEDIATELY PRIOR TO CONTINUANCE OF WORK. COORDINATE WITH LOCAL UTILITY COMPANIES PRIOR TO UTILITY DISCONNECT.
2. PERFORM ALL WORK IN ACCORDANCE WITH DRAWINGS AND ALL APPLICABLE CODES AND REGULATIONS UNLESS OTHERWISE NOTED. COMPLY WITH THE REQUIREMENTS OF THE VARIOUS FEDERAL, STATE, AND LOCAL SAFETY CODES (E.G. OSHA).
3. UNLESS NOTED OTHERWISE (UNO), EXISTING FEATURES SHALL REMAIN. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF EXISTING FEATURES, INCLUDING EXISTING UTILITIES.
4. OBTAIN ALL REQUIRED PERMITS PRIOR TO EXECUTION OF THE WORK.
5. NOTIFY THE ENGINEER OF ALL ITEMS OF CONSTRUCTION REMAINING AND NOT SPECIFICALLY MENTIONED THAT INTERFERE WITH THE NEW CONSTRUCTION.
6. MAINTAIN CONDITION OF EXCAVATION SLOPE(S) AND PROVIDING SAFE WORKING CONDITIONS FOR ALL PERSONS ON THE PROJECT SITE THROUGHOUT THE CONSTRUCTION PROCESS.

SUGGESTED SEQUENCE OF CONSTRUCTION

1. LAYOUT LIMITS OF SHEET PILE BASED UPON TOTAL STREAM WIDTH.
2. DRIVE SHEET PILE TO MINIMUM TOE EMBEDMENT AS INDICATED IN THE SECTIONS. PROVIDE DRIVING LOGS TO ENGINEER WITHIN 24 HOURS OF PILE DRIVING COMPLETION. LOGS AT A MINIMUM SHALL STATE BLOWS PER FOOT, HAMMER SIZE AND ENERGY.
3. PLACE RIPRAP AS SHOWN IN THE DRAWINGS

DESIGN CRITERIA

1. SHEET PILES SIZED BASED ON SHEAR AND BENDING MOMENTS ESTIMATED USING "NAVFAC DESIGN MANUAL 7.02 FOUNDATIONS AND EARTH STRUCTURES. MAXIMUM ANTICIPATED LATERAL MOVEMENT AT TOP-OF-SHEET PILE IS 1 INCH.
2. DESIGN GROUNDWATER LEVEL IS ASSUMED AT A STATIC LEVEL EQUAL TO THE STREAM INVERT.
3. SHEET PILE DESIGNED IN ACCORDANCE WITH ALLOWABLE STRESS DESIGN (ASD) PROVISIONS OF THE "AISC STEEL CONSTRUCTION MANUAL", 14TH EDITION.

MATERIAL SPECIFICATIONS:

1. STEEL SHEET PILES SHALL BE NZ14, OR APPROVED EQUIVALENT, CONFORMING TO ASTM A572, GRADE 50.
2. SHEET PILE CORNER ANGLES: USE MANUFACTURE'S CORNER PILE ANGLE ELEMENTS TO MEET THE ANGLES CALLED FOR ON THE DETAIL.
3. RIP-RAP AROUND SHEET PILE SHALL BE D_{50} = 18" SIZE RIP RAP.

PILE WALL TOLERANCES

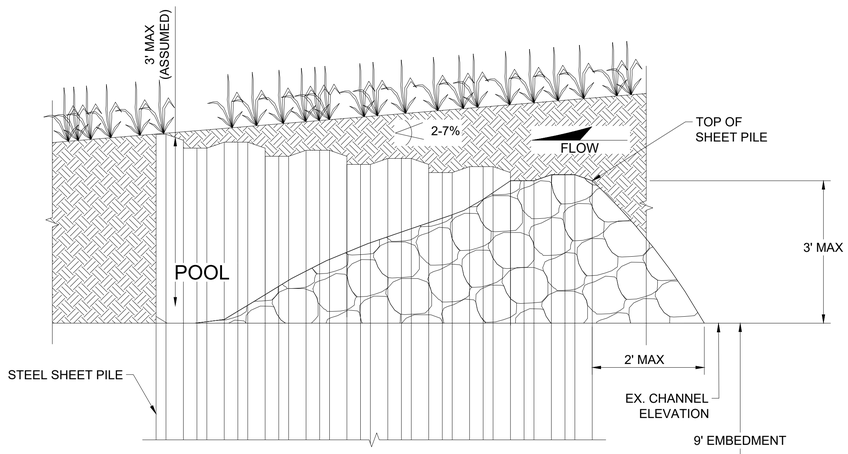
1. PLACE SHEET PILES AT THE LOCATIONS SHOWN ON THE PLAN VIEW. DO NOT DEVIATE BY MORE THAN 3 INCHES IN ANY DIRECTION FOR OF THE WALL.

FIELD TESTING INSPECTION

1. PROVIDE MINIMUM 24 HOUR NOTICE TO INSPECTION ENGINEER'S STAFF OF CONSTRUCTION ACTIVITY REQUIRING TESTS.

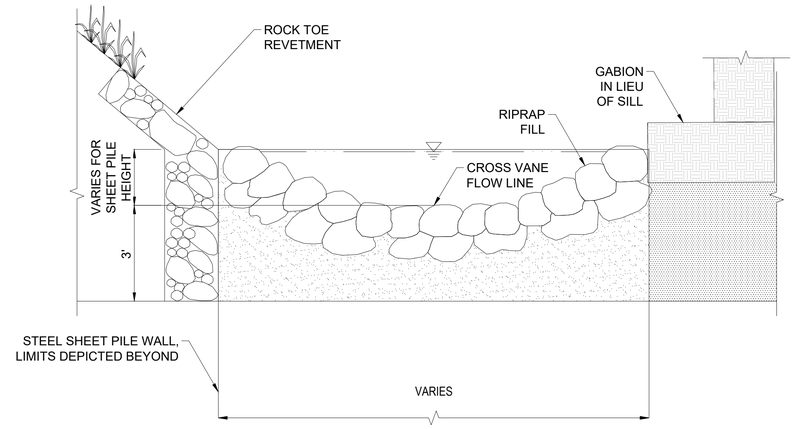
SUBMITTALS

1. PROVIDE PILE DRIVING LOGS TO ENGINEER WITHIN 24 HOURS OF PILE INSTALLATION COMPLETION.



SHEET PILE PROFILE VIEW

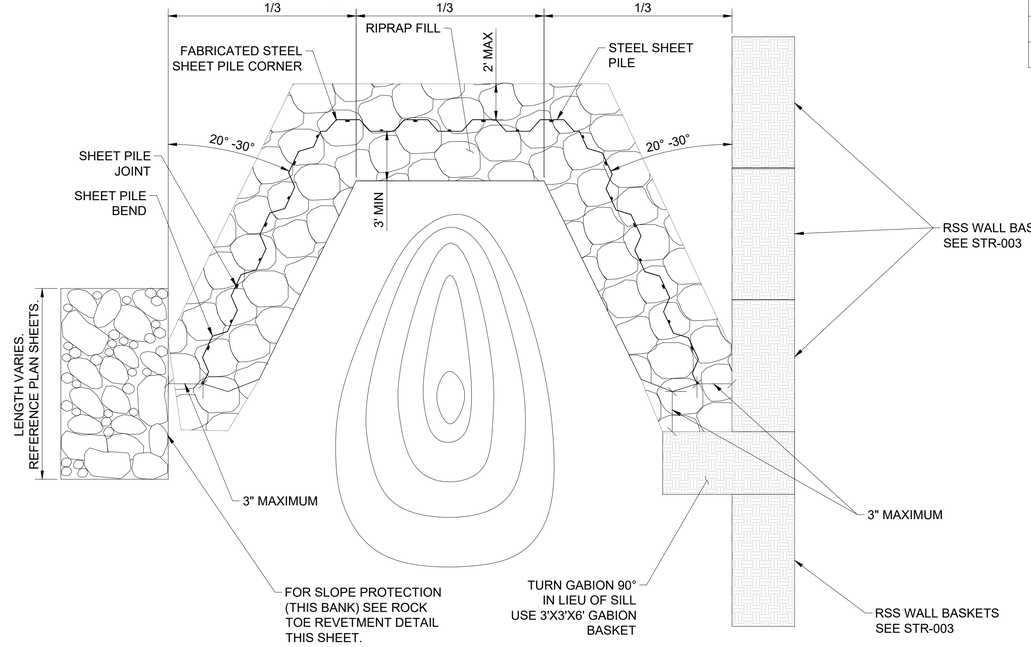
NOT TO SCALE



SHEET PILE CROSS SECTION VIEW

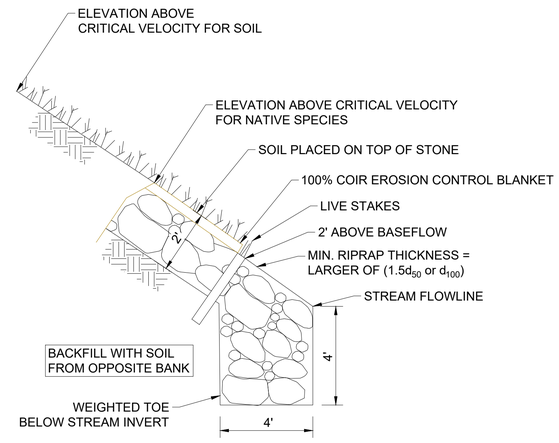
NOT TO SCALE

CROSS VANE INFORMATION				
LOCATION	CHANNEL EL.	SHEET PILE ℄ EL.	SHEET PILE EDGE EL.	100-YR CRITICAL VEL. EL.
STA 28+40	1089.33	1092.33	1093.00	1100.88
STA 24+60	1087.85	1090.85	1091.50	1098.53



SHEET PILE LAYOUT DETAIL

NOT TO SCALE



ROCK TOE REVETMENT WITH LIVE SOIL

NOT TO SCALE

REVISIONS:

WSP USA ENVIRONMENT & INFRASTRUCTURE
245 N. WACO AVENUE, SUITE 110
WICHITA, KANSAS 67202
PHONE: 316-448-2711
FAX: 316-448-2711

SHEET PILE DETAIL STR-004

IMHOFF CREEK BANK STABILIZATION
CITY OF NORMAN, OKLAHOMA

DESIGNED BY: ---
DRAWN BY: ACG
CHECKED BY: EJB
DATE: Mar 22, 2024

LICENSED PROFESSIONAL ENGINEER
ERIC J. BROCE
25093
3-22-24
OKLAHOMA

PROJECT NO.
8275000431

SHEET NO.
30 OF 30