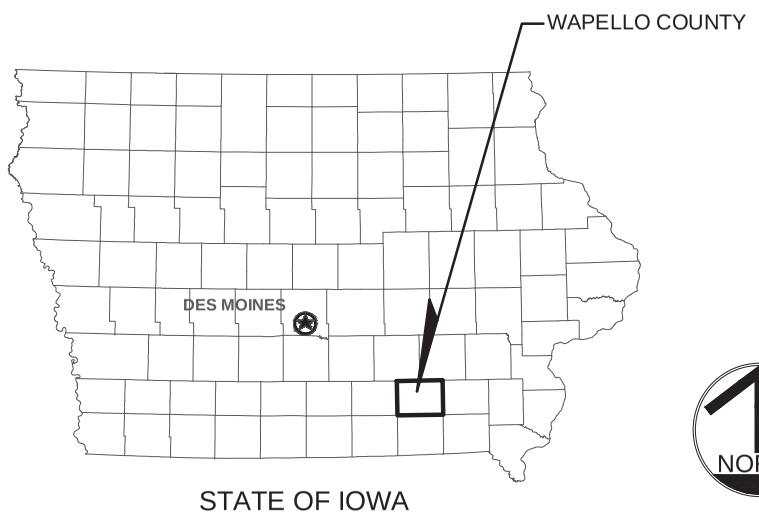
SHAFER
AML RECLAMATION PROJECT

DIVISION OF SOIL CONSERVATION
IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP

PROJECT NO. 19270

NW ¼, SW ¼ SECTION 27, TOWNSHIP 73N, RANGE 15W, WAPELLO COUNTY IOWA

FUNDED BY:
U.S. DEPARTMENT OF THE INTERIOR
OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT
GRANT NO: S11AF20027
IN PARTNERSHIP WITH WAPELLO COUNTY SWCD AND PATHFINDERS RC & D
WATERSHED COOPERATIVE AGREEMENT PROGRAM



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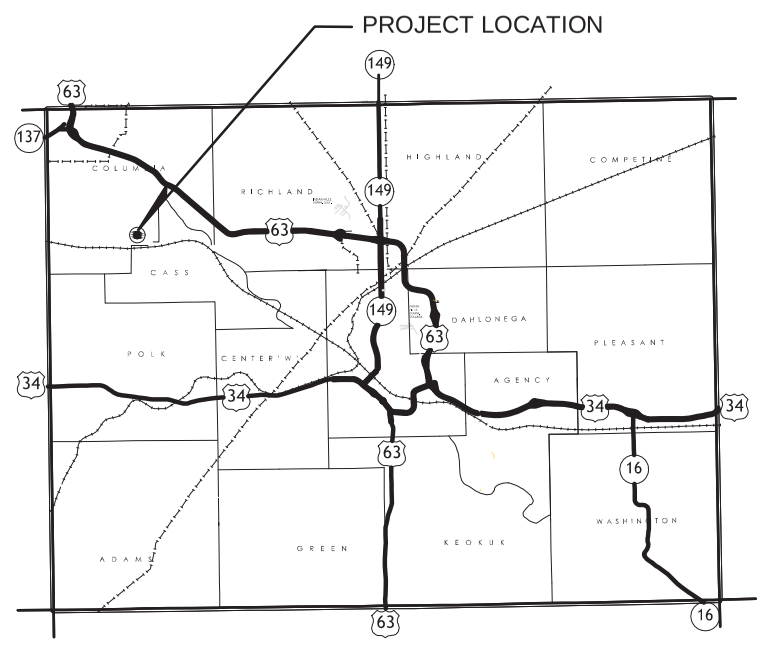
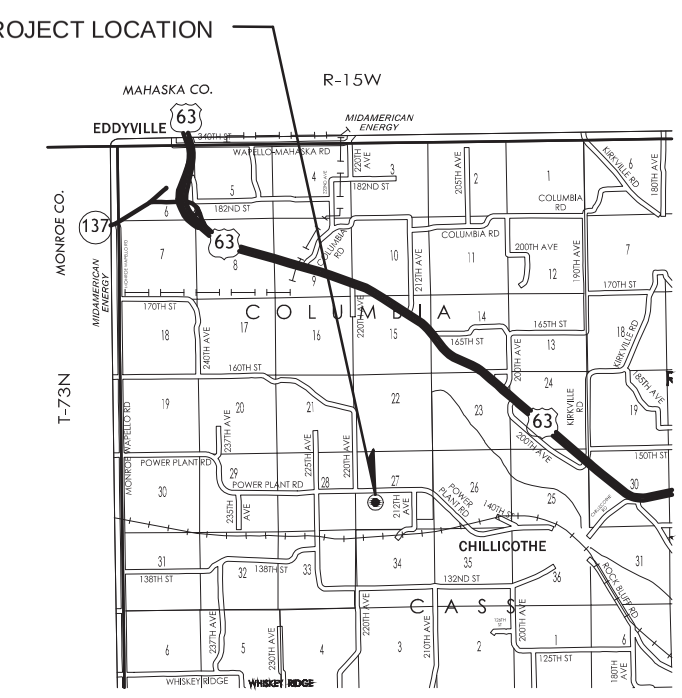


WAPELLO COUNTY



LOCAL VICINITY

PREPARED BY AND FOR:
DIVISION OF SOIL CONSERVATION
IOWA DEPARTMENT OF AGRICULTURE & LAND STEWARDSHIP
HENRY A. WALLACE BUILDING
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LICENSED PROFESSIONAL ENGINEER
WALLACE JAMES GREENLEES
16735
IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa

Signature: Wallace J Greenlees Date: 3-6-2012

Name (printed or typed): WALLACE J. GREENLEES

License Number: 16735

My license renewal date is: DECEMBER 31, 2012

Pages or sheets covered by this seal: ENTIRE DOCUMENT

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COVER SHEET

SHEET 1 OF 13

PROJECT NOTES

GENERAL NOTES:

1. ALL IMPROVEMENTS SHOWN ON THESE PLANS SHALL COMPLY WITH THE GENERAL CONDITIONS, STANDARDS, AND SPECIFICATIONS SET FORTH IN PROJECT DOCUMENTS. THESE INCLUDE STANDARD CONSTRUCTION SPECIFICATIONS SET FORTH BY THE DIVISION OF SOIL CONSERVATION AS WELL AS THE SUPPLEMENTAL SPECIFICATIONS ESTABLISHED BY THE ENGINEER. SPECIFICATIONS OR STANDARDS INCORPORATED BY REFERENCE SHALL ALSO BE FOLLOWED.

2. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE DIVISION'S STANDARD SPECIFICATIONS AND THE ENGINEER'S SUPPLEMENTAL SPECIFICATIONS.

2. OWNERSHIP: THIS DOCUMENT, AND THE IDEAS AND DESIGN CONTAINED IN THIS DOCUMENT, ARE AN INSTRUMENT OF PROFESSIONAL SERVICE, AND MAY NOT BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN CONSENT OF THE DIVISION OF SOIL CONSERVATION.

3. REFERENCES TO PARTICULAR PRODUCTS, TRADENAMES, OR MANUFACTURERS IS INTENDED FOR CLARITY ONLY AND DO NOT REPRESENT EXCLUSION OR ENDORSEMENT BY THE STATE OF IOWA. EQUIVALENT PRODUCTS OR MATERIALS MAY BE SUITABLE, SUBJECT TO THE APPROVAL OF THE ENGINEER.

3. CONTRACTOR SHALL PROVIDE AT LEAST 48 HOURS NOTICE TO THE ENGINEER AND/OR DIVISION PRIOR TO COMMENCING CONSTRUCTION.

UTILITY NOTES:

1. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL EXISTING UTILITIES AND PUBLIC ROADWAYS, INCLUDING ANY NOT SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER IF ANY CONFLICTS WITH THE DRAWINGS OCCUR. ANY DAMAGE TO EXISTING UTILITIES AND/OR PAVED STREETS CAUSED BY TRENCHING AND GRADING OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITY LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE.

2. UNDERGROUND FACILITIES STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS, PUBLIC RECORDS, AND FIELD INVESTIGATION. THEIR LOCATIONS SHALL BE CONSIDERED TO BE APPROXIMATE ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT IOWA ONE-CALL AND/OR EACH UTILITY COMPANY FOR THE FIELD LOCATION(S) OF EXISTING UTILITY LINES IN OR NEARBY THE CONSTRUCTION AREA PRIOR TO BEGINNING ANY CONSTRUCTION.

3. THERE MAY BE ADDITIONAL PRIVATE OR OTHER UNDERGROUND UTILITIES NOT SHOWN OR KNOWN AT THE TIME OF THE PUBLICATION OF THIS DRAWING. IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXISTENCE AND LOCATION OF ANY ADDITIONAL UNDERGROUND UTILITIES NOT SHOWN ON THIS DRAWING IN ORDER TO AVOID DAMAGE THERETO.

4. THE CONTRACTOR SHALL EXCERCISE PROPER CAUTION TO PROTECT EXISTING UTILITY IMPROVEMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE THERETO AT NO ADDITIONAL EXPENSE TO THE OWNER OR DIVISION.

TABLE: ESTIMATED QUANTITIES

ITEM NO.	ITEM	SPEC. SECTION	QTY.	UNITS
1	MOBILIZATION	02100	1	LUMP SUM
2	CLEARING & SITE PREPARATION	02100	3	ACRES
3	OFF-SITE WASTE DISPOSAL	02100	6	TON
4	SURFACE ROUGHENING	02120	3	ACRES
5	SILT FENCE INSTALLATION	02120	956	LF
6	SILT FENCE REMOVAL	02120	956	LF
7	FILTER SOCK INSTALLATION	02120	1086	LF
8	FILTER SOCK REMOVAL	02120	1086	LF
9	EXCAVATION	02200	6600	CY
10	EXCESS ROCK & STONE REMOVAL	02210	10	HOUR
11	TERRACES	02300	591	LF
12	RIPRAP	02300	16	TON
13	TERRACE TILING, 8"	02300	292	LF
14	TERRACE TILING OUTLETS, 8"	02300	2	EACH
15	TERRACE INLET RISERS, 8"	02300	2	EACH
16	AG LIME, SUBGRADE, (15 TON ECCE/ACRE)	02400	45	TON ECCE
17	MULCH, SUBGRADE, (5 TON/ACRE)	02400	3	ACRES
18	AG LIME, SEEDING, (5 TON ECCE/ACRE)	02700	15	TON ECCE
19	NITROGEN (N), (80 LB./ACRE)	02700	240	POUNDS
20	PHOSPHOROUS (P), (60 LB./ACRE)	02700	180	POUNDS
21	POTASSIUM (K), (100 LB./ACRE)	02700	300	POUNDS
22	PERMANENT SEEDING	02700	3	ACRES
23	MULCH, SEEDING (3 TON/ACRE)	02700	3	ACRES
24				

SPECIAL NOTES:

1. QUANTITIES OF FERTILIZER AND LIME ARE ESTIMATED FOR BIDDING PURPOSES. ACTUAL QUANTITIES APPLIED WILL BE DETERMINED BY SOIL TESTS.

2. THE EXCESS ROCK & STONE BID ITEM IS INTENDED TO COMPENSATE THE CONTRACTOR FOR COLLECTION AND DISPOSAL OF EXCESS ROCK & STONE FRAGMENTS ON THE SITE AFTER COMPLETION OF ROUGH GRADING AND BEFORE TERRACE CONSTRUCTION.

LEGEND

- OE — OVERHEAD ELECTRIC
- UE — UNDERGROUND ELECTRIC
- UT — UNDERGROUND TELEPHONE
- OT — OVER HEAD TELEPHONE
- SAN — SANITARY SEWER
- ST — STORM SEWER
- W — WATER LINE
- G — NATURAL GAS LINE
- FO — FIBER OPTIC LINE
- TREE LINE
- X — EXISTING FENCE
- PROPOSED FENCE
- SILT FENCE
- FILTER SOCK OR STRAW WATTLE
- TERRACE RIDGE LINE
- TERRACE CHANNEL FLOW DIRECTION
- TERRACE DRAIN PIPE
- NO BURN — BURN LIMIT RADIUS
- SURVEY CONTROL POINT
- SECTION CORNER FOUND

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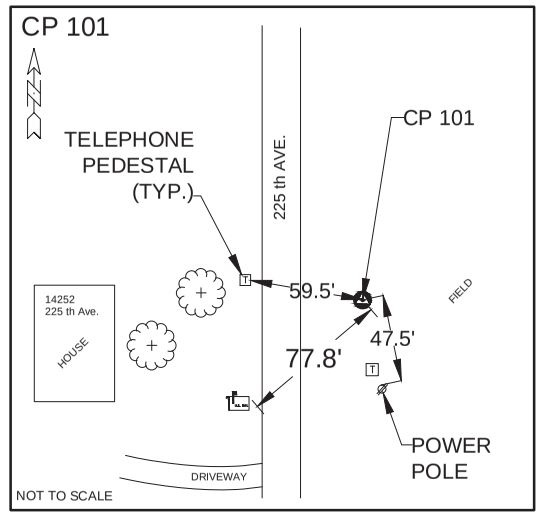
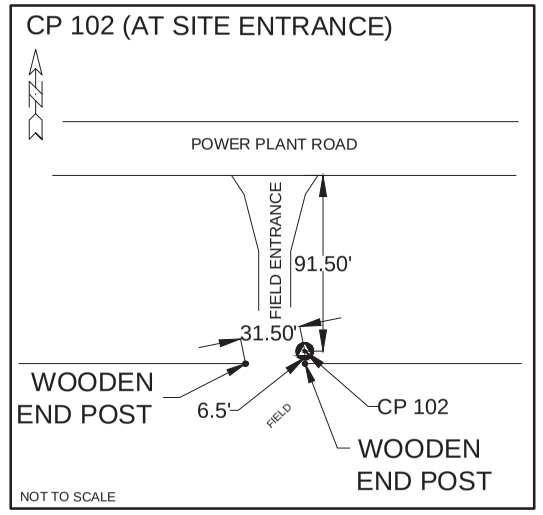
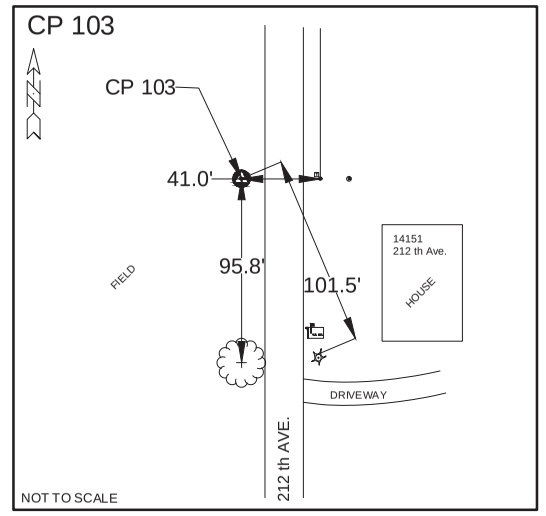
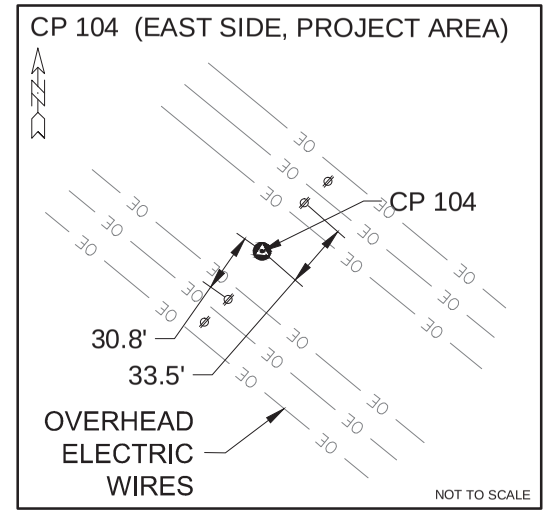
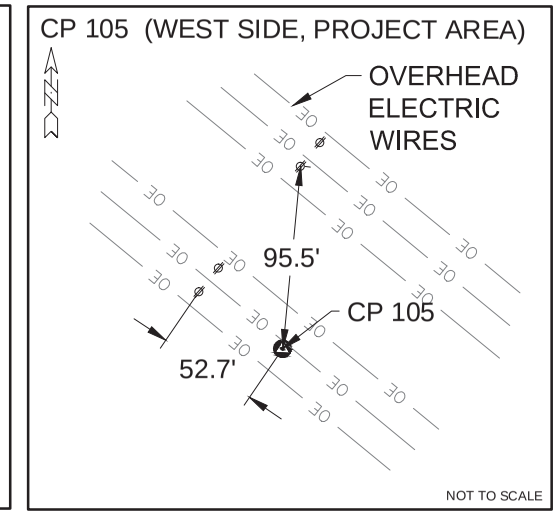
PROJECT NOTES, LEGEND & QUANTITIES











NOTE: ALL CONTROL POINTS DESCRIBED ABOVE WERE 5/8" x 30" I.R. SET TO WITHIN 0.1' ABOVE EX. SOIL SURFACE WITH PINK FLAGGING. NO CAPS.

LEGEND

- DECIDUOUS TREE
- STUMP
- TELEPHONE PEDESTAL
- POWER POLE
- U.S. MAIL BOX

TABLE: CONTROL POINT & STATION - OFFSET - COORDINATES

DWG. SHEET	POINT I.D.	STATION	OFFSET DISTANCE (FT.)	OFFSET SIDE	COORDINATES NORTH (FT.)	COORDINATES EAST (FT.)	COORDINATES ELEV. (FT.)	STATUS FOUND OR SET?	STATUS SIZE/TYPE
3,4	CP 101	---	---	---	399779.871	1890656.938	746.133	SET	5/8" I.R. W/PINK FLAG
3,4	CP 102	---	---	---	400875.970	1894248.665	756.626	SET	5/8" I.R. W/PINK FLAG
3,4	CP 103	---	---	---	399258.642	1897218.948	732.873	SET	5/8" I.R. W/PINK FLAG
3,4	CP 104	---	---	---	400004.991	1894438.640	719.993	SET	5/8" I.R. W/PINK FLAG
3,4	CP 105	---	---	---	400298.375	1894014.630	727.710	SET	5/8" I.R. W/PINK FLAG
5	BEGIN	0+00	0.0	RT.	399970.222	1894236.741	---	---	POINT ON STA. BASELINE
5	P.I.	3+26.5	0.0	RT.	400285.831	1894320.351	---	---	BASELINE INTERSECT POINT
5	END	5+00.0	0.0	RT.	400453.549	1894364.782	---	---	POINT ON STA. BASELINE
5	BEGIN	6+00.0	0.0	RT.	400337.012	1894075.646	---	---	POINT ON STA. BASELINE
5	P.I.	8+50.00	0.0	RT.	400285.831	1894320.351	---	---	BASELINE INTERSECT POINT
5	END	10+25.0	0.0	RT.	400250.004	1894491.644	---	---	POINT ON STA. BASELINE

NOTES:

1. HORIZONTAL DATUM = NAD 1983, IOWA STATE PLANE, SOUTH ZONE (GRID COORDINATES ARE SHOWN)
2. VERTICAL DATUM = NAVD 1988
3. FND. = A SURVEY MARKER OR MONUMENT THAT WAS FOUND AS PART OF PRELIMINARY WORK.
4. SET = A SURVEY MARKER OR MONUMENT THAT WAS SET FOR USE ON THIS PROJECT
5. I.R. = IRON ROD
6. MON. = MONUMENT
7. P.I. = POINT OF INTERSECTION
8. P.C. = POINT OF CURVATURE
9. P.T. = POINT OF TANGENCY

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CONTROL POINT COORDINATES & TIES

SHEET 3 OF 13

NOTES THIS SHEET:

1. PROPERTY LINES AND SECTION LINES, IF SHOWN, ARE APPROXIMATE.
2. CONTROL POINT COORDINATES ARE SHOWN ON SHEET 6
3. TIES FOR CONTROL POINTS ARE SHOWN ON SHEET 6.

NORTH

0 500 1000

SCALE: 1"=500'

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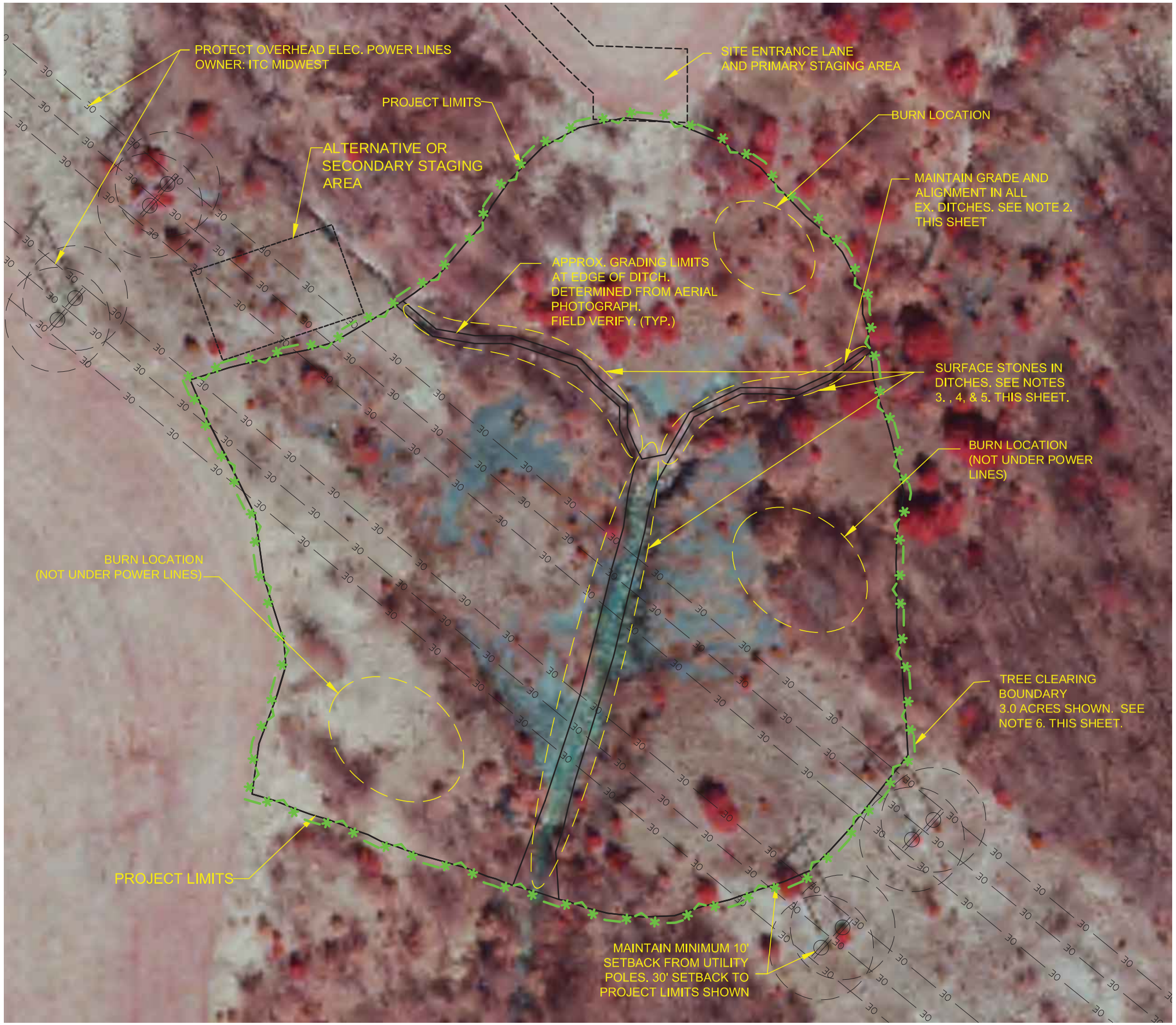
SITUATION PLAN
BURN RADII & SURVEY CONTROL

SHEET 4 OF 13



NOTES THIS SHEET:

1. UTILITY POLE AND OVERHEAD WIRE LOCATIONS WERE MAPPED BY INSPECTION OF AERIAL PHOTOGRAPH. FIELD VERIFICATION INDICATES ACTUAL LOCATIONS TO BE WITHIN ABOUT NINE (9) FEET OF LOCATIONS SHOWN ON THIS DRAWING SET.

2. THERE SHALL BE NO EXCAVATION IN THE EXISTING DITCHES. CONTRACTOR SHALL WORK IN SUCH AS WAY AS TO MAINTAIN EXISTING GRADE AND ALIGNMENT "AS–IS" UNLESS OTHERWISE NOTED.

3. SURFACE STONE 6" & LARGER (SMALLEST DIMENSION) EXIST IN THE DITCHES. THESE MAY OBSTRUCT MACHINERY OPERATIONS. CONTRACTOR SHALL MOVE STONES SUFFICIENTLY AS NECESSARY TO ALLOW ROUGH GRADING OF THE SLOPE TO THE DITCH BOTTOM ON BOTH SIDES OF ALL DITCHES. THIS WORK SHALL BE INCIDENTAL TO CLEARING AND SITE PREPARATION.

4. ONCE SUBRADE PREPARATION AND LIMING IS COMPLETE, NEATLY PLACE EXISTING STONE, (FROM NOTE 3) ALONG BOTH EDGES OF THE DITCH ON THE TOE OF THE FINISHED SLOPE. CONTRACTOR SHALL LEAVE THE CENTRAL PORTION OF THE DITCHES CLEAR OF STONE OR OTHER LARGE DEBRIS. THIS WORK SHALL BE INCIDENTAL TO SUBGRADE PREPARATION.

5. WHEN PLACING STONES TO SATISFY NOTE 4, CONTACTOR SHALL LEAVE A 20' WIDE CROSSABLE PATH ACROSS EACH OF THE EAST AND WEST TRIBUTARY DITCHES FOR CONVENIENCE OF LANDOWNER ACCESS AND MAINTENANCE. THIS WORK MAY BE PERFORMED NEAR THE END OF THE PROJECT, AND IT SHALL BE INCIDENTAL TO SUBGRADE PREPARATION.

6. CLEARING ACTIVITIES VARY WITHIN TREE CLEARING BOUNDARY. CLEARING LIMITS ARE THE SAME AS GRADING OR PROJECT LIMITS. CLEARING LIMIT IS SHOWN OUTSIDE OF PROJECT LIMITS FOR CLARITY.

7. THERE SHALL BE NO BURNING DIRECTLY BENEATH THE OVERHEAD POWER LINES. MAINTAIN SUFFICIENT DISTANCE BETWEEN BURN PILES AND PROJECT LIMITS TO PREVENT SPREAD OF FIRE TO REMAINING TREES.

NORTH

0 60 120

SCALE: 1"=60'

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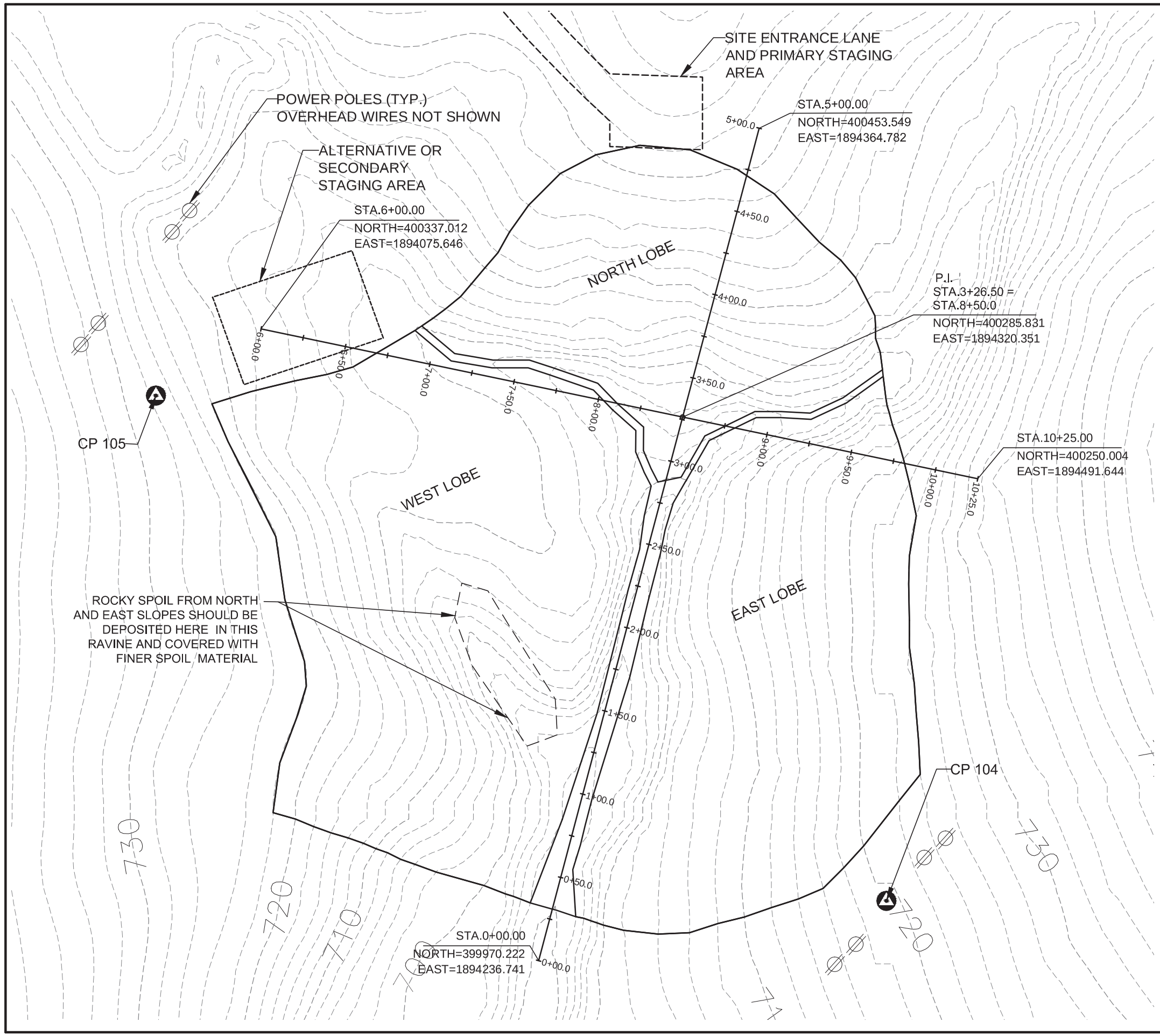
SITUATION PLAN
CLEARING & SITE PREPARATION

SHEET 5 OF 13



NOTES THIS SHEET:

1. CONTRACTOR SHALL RESTRICT ACCESS TO WITHIN THE INDICATED SITE ENTRANCE LANE. REFER TO SHEET 3.

2. ACCESS LANE IS ALONGSIDE CROP LAND. CONTRACTOR SHALL TAKE CARE TO MINIMIZE DAMAGE. ANY ALL DAMAGE TO THE ACCESS LANE OR STAGING AREAS MUST BE REPAIRED. COSTS FOR REPAIRS SHALL BE INCIDENTAL TO MOBILIZATION.

3. TIES AND COORDINATES FOR CONTROL POINTS ARE LOCATED ON SHEET 6.

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SITUATION PLAN
SURVEY BASELINE DETAILS

SHEET **6** OF **13**

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

SITE INFORMATION:

1. SITE IS LOCATED IN THE NW ¼ SW ¼ SECTION 27 TOWNSHIP 73 NORTH RANGE 15 WEST, WAPPELLO COUNTY, IOWA

2. THIS SWPPP COVERS THE RECLAMATION OF APPROXIMATELY 3 ACRES OF STRIP MINED LAND.

3. THE PREDOMINATE SOIL TYPES ARE: MINE SPOIL, PITS–DUMPS COMPLEX (5020); WELLER SILTY CLAY LOAM, 9–14% SLOPES (732D2); MUNTERVILLE SILT LOAM, 9–18% SLOPES (1313E2); CLINTON SILT LOAM, 9–14% SLOPES (80D2).

4. RUNOFF FROM THE CONSTRUCTION AREA WILL FLOW INTO AN UNNAMED TRIBUTARY TO THE MIDDLE AVERY CREEK TO THE DES MOINES RIVER.

5. THE AVERAGE NRCS RUNOFF CURVE NUMBER FOR THIS LAND AFTER PERMANENT VEGETATION IS ESTABLISHED IS ESTIMATED TO BE 74.

GENERAL:

1. THIS PROJECT WILL BE COVERED BY NPDES GENERAL PERMIT NO. 2 WHICH REGULATES RUNOFF FROM CONSTRUCTION SITES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM THE REQUIRED MONITORING INSPECTION, AND MAINTENANCE OF ALL BEST MANAGEMENT PRACTICES (BMPs) AS REQUIRED BY THE PERMIT.

2. THE PRIME CONTRACTOR AND ALL ITS SUBCONTRACTORS SHALL CONDUCT THEIR OPERATIONS IN A MANNER WHICH MINIMIZES EROSION AND PREVENTS SEDIMENTS FROM LEAVING THE CONSTRUCTION SITE. THE PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION AND COMPLIANCE OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) FOR THE ENTIRE CONTRACT. THIS REPONSIBILITY SHALL BE FURTHER SHARED WITH ALL ITS SUBCONTRACTORS.

3. THE WORK SHALL BE DONE IN ACCORDANCE WITH THIS PLAN, THE CONTRACT DRAWINGS, AND SECTION 02120 OF THE CONSTRUCTION SPECIFICATIONS. IN THE EVENT OF CONFLICT BETWEEN THESE REQUIREMENTS AND WATER POLLUTION CONTROL LAWS, RULES OR REGULATIONS OF OTHER FEDERAL, STATE OR LOCAL AGENCIES, THE MORE RESTRICTIVE LAWS, RULES OR REGULATIONS SHALL APPLY.

4. A COPY OF THE SWPPP SHALL BE KEPT IN A CONTRACTOR–SUPPLIED, WEATHER–PROTECTED ENCLOSURE SUCH AS A MAILBOX, SO THAT THE PLAN IS ACCESSIBLE AT THE SITE AT ALL TIMES. A SIGN OR NOTICE POSTED BY THE CONTRACTOR SHALL INDICATE THE PLAN'S LOCATION.

5. THE CONTRACTOR SHALL NOTIFY THE IOWA DNR, THE DIVISION, AND THE LOCAL POILICE DEPARTMENT OF ANY HAZARDOUS CONDITIONS AS SOON AS POSSIBLE BUT NOT MORE THAN SIX (6) HOURS AFTER ONSET OF HAZARDOUS CONDITIONS. HAZARDOUS CONDITIONS AR DEFINED AS ANY SITUATION INVOLVING THE ACTUAL, IMMINENT, OR PROBABLE SPILLAGE, LEAKAGE, OR RELEASE OF A HAZARDOUS SUBSTANCE ONTO THE LAND, INTO WATERS OF THE STATE, OR INTO THE ATMOSPHERE, WHICH CREATES AN IMMEDIATE OR POTENTIAL DANGER TO THE PUBLIC HEALTH OR SAFETY OR THE ENVIRONMENT.

6. CONTRACTOR SHALL FOLLOW THE IOWA CONSTRUCTION SITE EROSION CONTROL MANUAL.

EROSION CONTROLS:

1. GRANULAR SURFACING SHALL BE INSTALLED AND MAINTAINED AT THE ENTRANCE INTO THE SITE AND OFFICE PARKING AREA TO CONTROL MUD FROM BEING TRACKED OFF SITE. ON AND OFF SITE TRACKING OF MUD SHALL BE REMOVED AS NECESSARY, IN ADDITION, WATER SHALL BE APPLIED TO HAUL ROADS AND OTHER DISTURBED EARTHEN SURFACES AS NECESSARY TO CONTROL DUST THROUGHOUT THE CONTRACT PERIOD.

2. WATER PUMPED DURING CONSTRUCTION OPERATIONS SHALL BE HANDLED IN A PROPER MANNER. EROSION AND SCOUR SHALL BE PREVENTED AT POINTS WHERE THE PUMP(S) DISCHARGE. LEVEL SPREADERS, RIP–RAP, AND/OR OTHER ENERGY ABSORBING DEVICES OR APPROPRIATE BMPs SHALL BE USED.

3. EXISTING VEGETATION IN AREAS NOT NEEDED FOR CONSTRUCTION SHALL BE PRESERVED.

4, WHERE PRACTICABLE, SILT FENCE SHALL BE INSTALLED AT THE DOWNSTREAM PERIMETER OF THE CONSTRUCTION AREA PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITY.

5. RISERS, INLETS, INTAKES, AND OTHER SUCH WATER–CONVEYING STRUCTURES SHALL BE PROTECTED WITH SILT FENCES AT THE TIME OF THEIR INITIAL INSTALLATION.

6. IN AREAS WHERE PRESENCE OF SILT FENCE WILL INTERFERE WITH CONSTRUCTION ACTIVITIES, DIVERSION DITCHES AND TEMPORARY SEDIMENT TRAPS SHALL BE UTILIZED UNTIL THE SILT FENCE OR OTHER PRACTICES CAN BE INSTALLED.

EROSION CONTROLS CONTINUED:

7. LOCATIONS AND QUANTITIES OF SILT FENCE OR OTHER BMPs SHOWN ON THE PLAN ARE APPROXIMATE. ACTUAL LOCATIONS OR QUANTITIES ARE TO BE DETERMINED IN THE FIELD WITH THE APPROVAL OF THE DIVISION OR THE THE ENGINEER.

8. AS THE WORK PROGRESSES, ADDITIONAL EROSION CONTROL MEASURES DEEMED NECESSARY, AS DETERMINED BY THE DIVISION OR ENGINEER AFTER INVESTIGATION, SHALL BE FURNISHED, INSTALLED AND MAINTAINED BY THE CONTRACTOR.

9. IF CONSTRUCTION ACTIVITY IS NOT PLANNED TO OCCUR IN A DISTURBED AREA FOR AT LEAST TWENTY–ONE (21) DAYS, THE AREA SHALL BE STABILIZED AS SOON AS PRACTICABLE AND WITHIN FOURTEEN (14) DAYS FOLLOWING THE LAST DISTURBANCE (UNLESS THE GROUND IS FROZEN OR SNOW COVERED) BY SURFACE ROUGHENING, TEMPORARY SEEDING, OR OTHER APPROVED METHOD.

10. NO MORE THAN FIVE (5) TOTAL ACRES OF EXPOSED ERODIBLE AREA IS ALLOWED AT ANY ONE TIME WITHOUT PERMISSION OF THE DIVISION OR ENGINEER.

11. WHEN AREAS REACH FINAL GRADE, THEY SHALL BE STABILIZED BY INCORPORATING MULCH AT THE RATE OF THREE (3) TONS PER ACRE INTO THE UPPER TWELVE (12) INCHES OF THE SOIL SURFACE. PERMANENT SEEDING SHALL BE INTIATED AS SOON THEREAFTER WITHIN THE SEEDING SEASONS OUTLINED IN THE SPECIFICATIONS. EROSION CONTROL MEASURES BY THE CONTRACTOR SHALL CONTINUE UNTIL PERMANENT GROUND COVER IS ESTABLISHED. AND ACCEPTED BY THE DIVISION.

12. ALL AREAS DISTURBED BEYOND CONSTRUCTION LIMITS SHOWN ON THIS PLAN MUST BE SEEDED AND STABILIZED. THE SEED MIXTURE USED SHOULD INCLUDE SPECIES SIMILAR TO AND COMPATIBLE WITH THE SURROUNDING VEGETATION.

OTHER POLLUTION CONTROLS:

1. THE CONTRACTOR SHALL MAINTAIN THE CONSTRUCTION SITE FREE OF ALL WASTES INCLUDING LITTER, USED PARTS, USED OIL AND CONTAINERS, TIRES, AND ANY OTHER WASTES GENERATED BY CONSTRUCTION ACTIVITIES. SANITARY WASTE GENERATED ON SITE SHALL BE TREATED AND DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REQUIREMENTS. CONTRACTOR DISPOSAL OF UNUSED CONSTRUCTION MATERIALS AND WASTES SHALL ALSO COMPLY WITH FEDERAL, STATE, AND LOCAL REGULATIONS.

2. CONCRETE WASHOUT RESIDUE SHOULD BE CONTAINED AND HAULED OFF SITE ONCE IT HARDENS. AREAS WHERE CONCRETE WASHOUT OCCURS SHALL BE FILLED AND STABILIZED.

INSPECTIONS:

1. SITE INSPECTION SHALL BE PERFORMED BY QUALIFIED PERSONNEL OF THE CONTRACTOR, OR BY THE DIVISION OR THE ENGINEER. INSPECTIONS SHALL BE PERFORMED ONCE EVERY SEVEN (7) DAYS AND WITHIN TEWNTY–FOUR (24) HOURS FROM THE END OF A STORM PRODUCING ONE–HALF (1/2) OR GREATER RAINFALL.

2. INSPECTIONS SHALL INCLUDE: ALL SILT FENCES, HAY BALE DIKES, DITCHES, SEDIMENT TRAPS, AND ALL OTHER EROSION CONTROL DEVICES; AREAS DISTURBED BY CONSTRUCTION ACTIVITY OR USED FOR STORAGE OF MATERIALS WHICH ARE EXPOSED TO PRECIPITATION; POLLUTION CONTROL MEASURES TO ENSURE PROPER OPERATION; DRAINAGE LOCATIONS TO DETERMINE EFFECTIVENESS IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATERS; AND LOCATION WHERE VEHICLES AND EQUIPMENT ENTER AND EXIT THE SITE FOR EVIDENCE OF OFF–SITE TRACKING.

3. SITE INSPECTION REPORTS SHALL BE PROPERLY SIGNED BY THE PERSON CONDUCTING THE INSPECTION. THE REPORT SHALL INCLUDE: DATE, NAME AND TITLE/POSITION OF THE INSPECTOR; WEATHER INFORMATION; LOCATION OF SEDIMENT/POLLUTANT DISCHARGE; CONTROL MEASURES A) REQUIREING MAINTENANCE, B) THAT HAVE FAILED, AND C) THAT ARE NEEDED; AND CORRECTIVE ACTIONS REQUIRED INCLUDING CHANGES/UPDATES TO THE SWPPP.

4. THE FINDINGS OF EACH INSPECTION SHALL BE RECORDED AND KEPT AT THE SITE IN A PROJECT FILE. THE CONTRACTOR SHALL IMMEDIATELY BEGIN CORRECTIVE ACTION ON ALL DEFICIENCIES FOUND. ALL CORRECTIVE ACTIONS SHALL BE COMPLETED WITHIN THREE (3) WORKING DAYS OF THE INSPECTION.

5. THE SWPPP MAY BE REVISED BASED ON FINDINGS OF THE INSPECTIONS. SUCH REVISIONS SHALL BE MADE WITHIN SEVEN (7) DAYS OF THE INSPECTION. THE CONTRACTOR SHALL IMPLEMENT ALL REVISIONS.

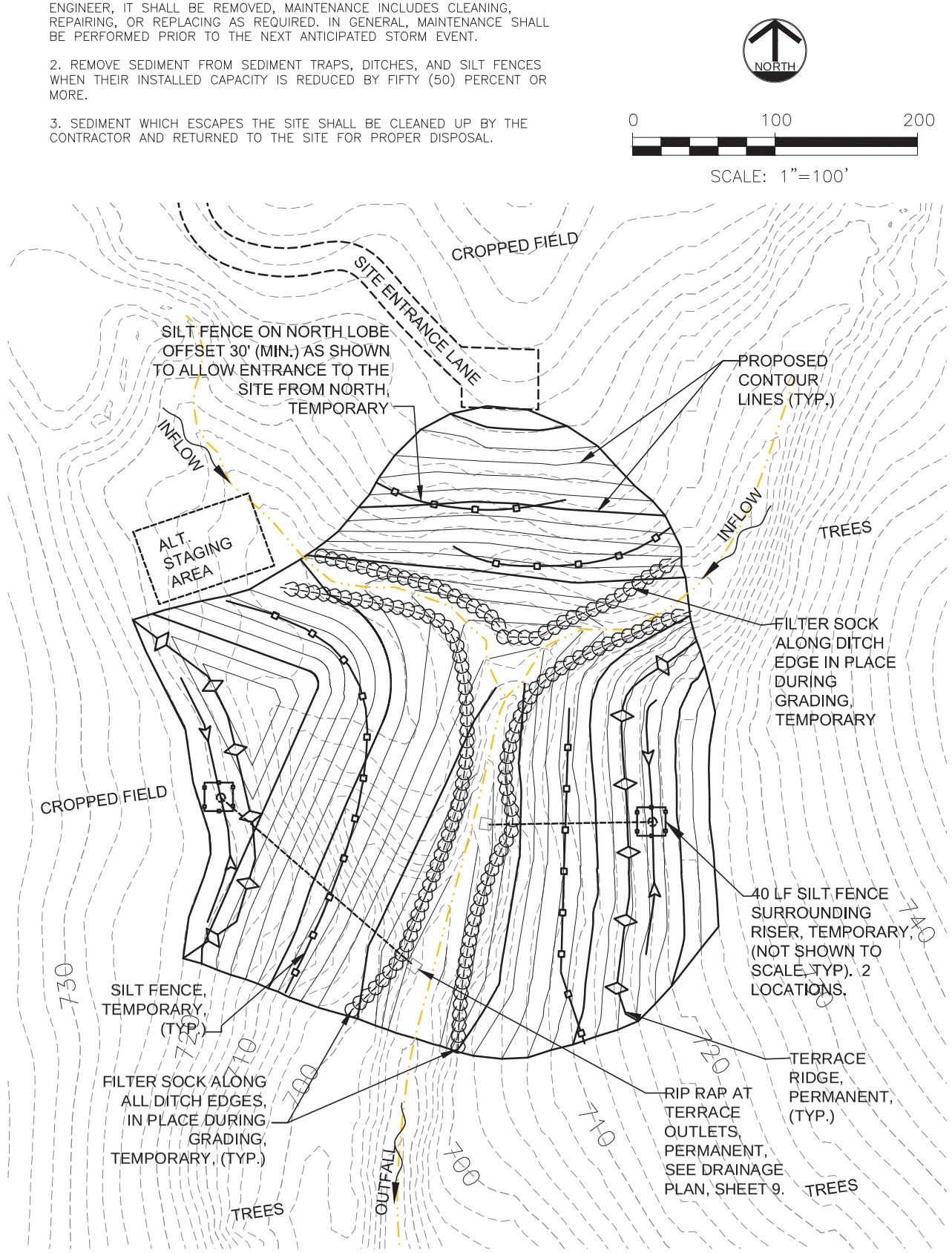
6. COPIES OF INSPECTION REPORTS WILL BE RETAINED WITH THE SWPPP FOR THREE (3) YEARS FROM THE DATE THE PERMIT COVERAGE TERMINATES.

MAINTENANCE:

1. THE CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL MEASURES IN PROPER WORKING ORDER FOR THE DURATION OF THE CONTRACT. IF A MEASURE IS NO LONGER NEEDED AS DETERMINED BY THE DIVISION OR ENGINEER, IT SHALL BE REMOVED, MAINTENANCE INCLUDES CLEANING, REPAIRING, OR REPLACING AS REQUIRED. IN GENERAL, MAINTENANCE SHALL BE PERFORMED PRIOR TO THE NEXT ANTICIPATED STORM EVENT.

2. REMOVE SEDIMENT FROM SEDIMENT TRAPS, DITCHES, AND SILT FENCES WHEN THEIR INSTALLED CAPACITY IS REDUCED BY FIFTY (50) PERCENT OR MORE.

3. SEDIMENT WHICH ESCAPES THE SITE SHALL BE CLEANED UP BY THE CONTRACTOR AND RETURNED TO THE SITE FOR PROPER DISPOSAL.



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DES MOINES, IOWA 50319
(515)281-4246

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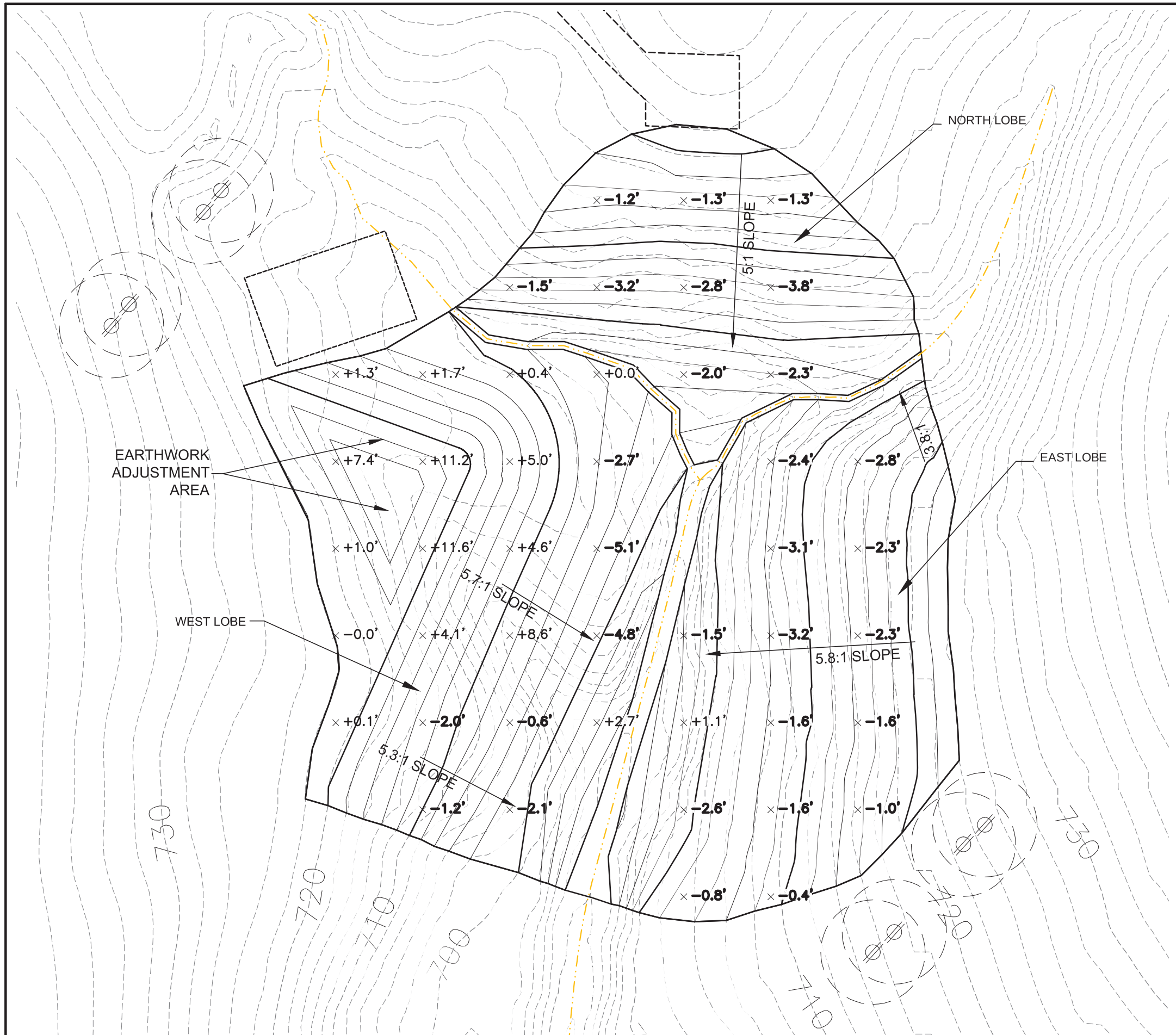
STORM WATER POLLUTION PREVENTION PLAN

SHEET 7 OF 13



NOTES THIS SHEET:

1. GRADE UPWARD FROM THE EDGE OF THE DITCH.

2. AVOID DISTURBANCE OF EXISTING CHANNEL GRADE AND ALIGNMENT.

3. CONTOURS SHOWN ON THIS SHEET ARE DESIGN FINISH GRADES PRIOR TO TERRACE CONSTRUCTION.

4. TERRACES ARE INTENDED TO BE BUILT PRIMARILY BY EXCAVATION AFTER COMPLETION OF FINISH GRADE. TERRACES NOT SHOWN HERE TO PRESERVE CLARITY. SEE DRAINAGE PLAN, SHEET 9.

5. TERRACES SHALL BE CONSTRUCTED OF SUITABLE MATERIAL. SUITABLILITY OF MATERIAL FOR TERRACES IS SUBJECT TO REVIEW BY THE ENGINEER.

6. TOTAL ESTIMATED CUT: 6600 CY

7. NORTH LOBE EXPORT: 2091 CY

8. EAST LOBE EXPORT: 2737 CY

9. WEST LOBE IMPORT: 4607 CY

10. ESTIMATED SHRINKAGE FOR DESIGN: 16%

11. NEGATIVE (−) VALUES INDICATE "CUT".

12. POSITIVE (+) VALUES INDICATE "FILL".

13. ALL CUT/FILL VALUES SHOWN IN FEET.

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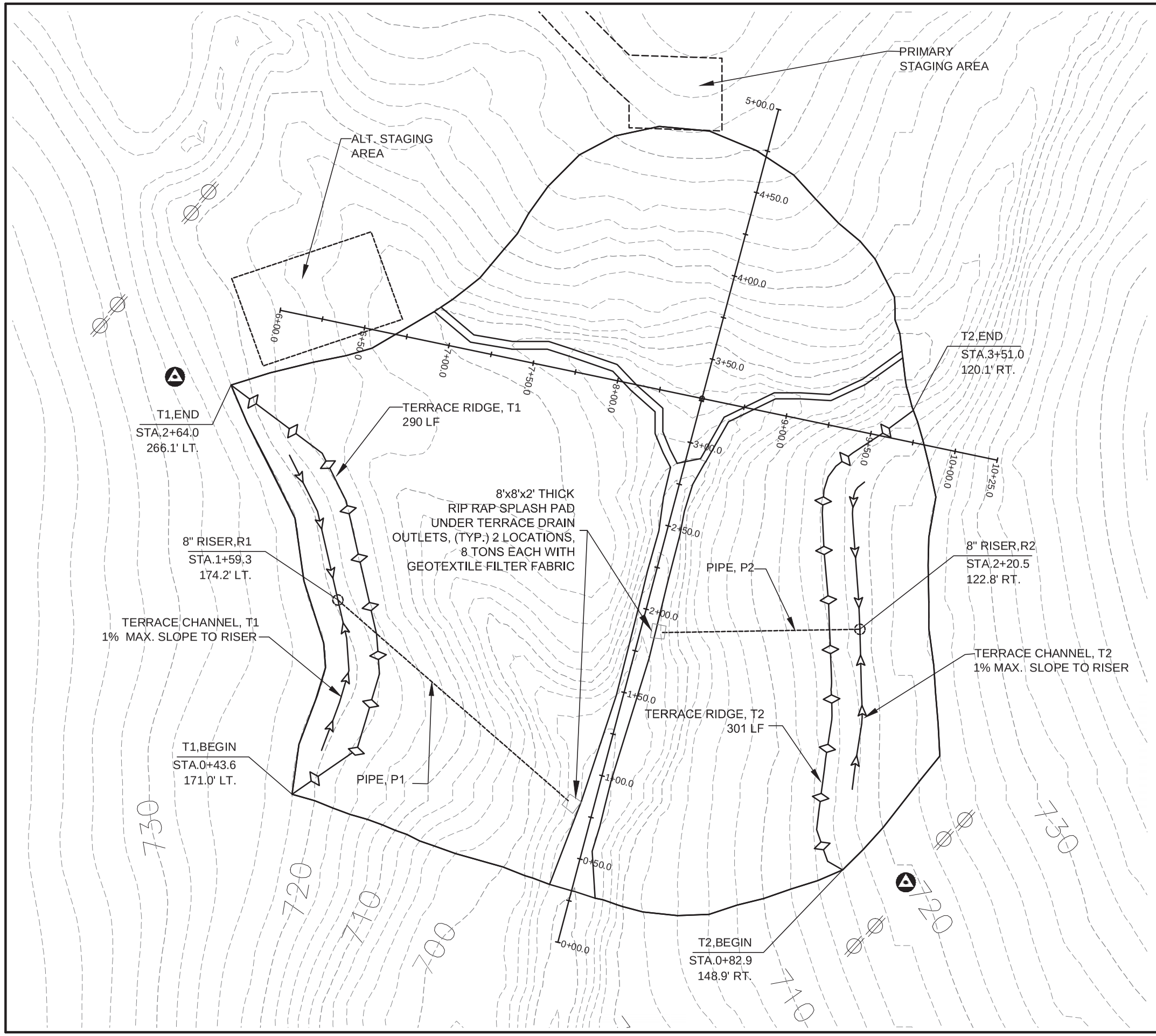
GRADING & CUT - FILL PLAN

SHEET **8** OF **13**



NOTES THIS SHEET:

1. STATION LOCATIONS GIVEN FOR TERRACE RIDGE LINES ARE SHOWN ON THE UPSTREAM FACE OF THE TERRACE.

2. TERRACE DRAIN PIPE INFORMATION

TILE "P1"
SIZE: 8" DIA.
LENGTH: 177.2 L.F.
MIN. SLOPE: 5%

TILE "P2"
SIZE: 8" DIA.
LENGTH: 114.5 L.F.
MIN. SLOPE: 5%

3. TERRACE OUTLET MUST BE LOCATED 1 FOOT ABOVE AND IT SHOULD PROTRUDE OVER THE RIP RAP SPLASH PAD BY APPROXIMATELY 2.5 FEET.

4. THE LAST 20 LF OF TERRACE TILING NEAREST THE OUTLET SHALL BE SOLID PVC SCHEDULE 40 PIPE AS SPECIFIED IN SECTION 2300, 2.2 A. AND 3.5 A. 6. TERRACE TILING OUTLETS ARE A SEPARATE BID ITEM SEE SUPPLEMENTAL SPECIFICATIONS.

5. A RODENT GUARD SHALL BE INSTALLED AT ALL OUTLETS AS SPECIFIED IN SECTION 2300, 3.5 A. 6. INSTALLATION OF RODENT GUARD IS INCIDENTAL TO TERRACE TILING OUTLETS.

6. FOR ADDITIONAL INFORMATION ABOUT TERRACE RISERS SEE THE TERRACE INTAKES TABLE ON SHEET 10.

7. FOR ADDITIONAL INFORMATION ABOUT THE TERRACES SEE THE TABLE ON SHEET 10.

8. RIP RAP SHALL BE UNDERLAIN BY FILTER FABRIC (NON-WOVEN GEOTEXTILE CLOTH) AS NOTED ON THIS PLAN

9. ALL FILTER FABRIC SHALL SATISFY THE MATERIAL QUALITIES SPECIFIED IN SECTION 02300, 2.4 A.

10. THE COST OF THE FILTER FABRIC SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE RIP RAP INSTALLATION AS STIPULATED IN SECTION 02120, 3.4, G.

11. TOPS OF TERRACES SHALL BE LEVEL THROUGHOUT.

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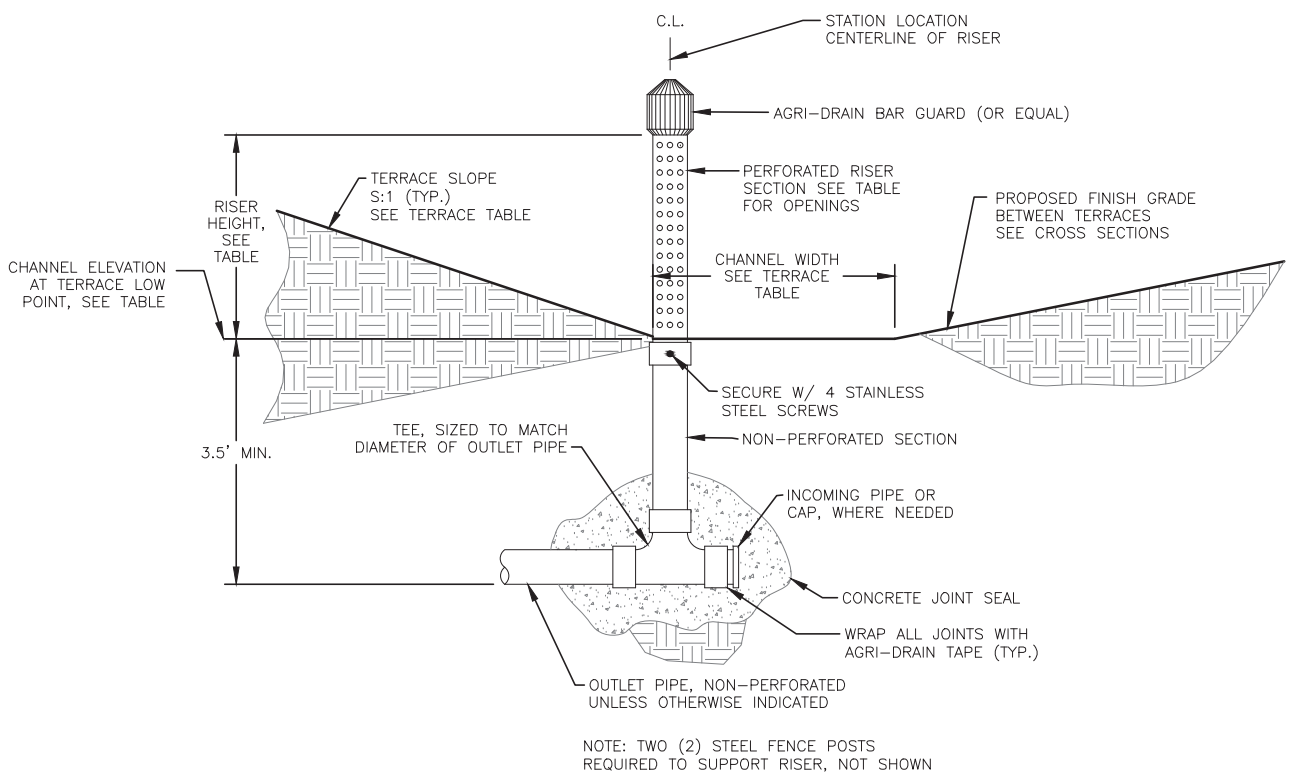
DRAINAGE & TERRACE PLAN

SHEET **9** OF **13**



NOTE: TWO (2) STEEL FENCE POSTS
REQUIRED TO SUPPORT RISER, NOT SHOWN

1/10 TERRACE INTAKE DETAIL

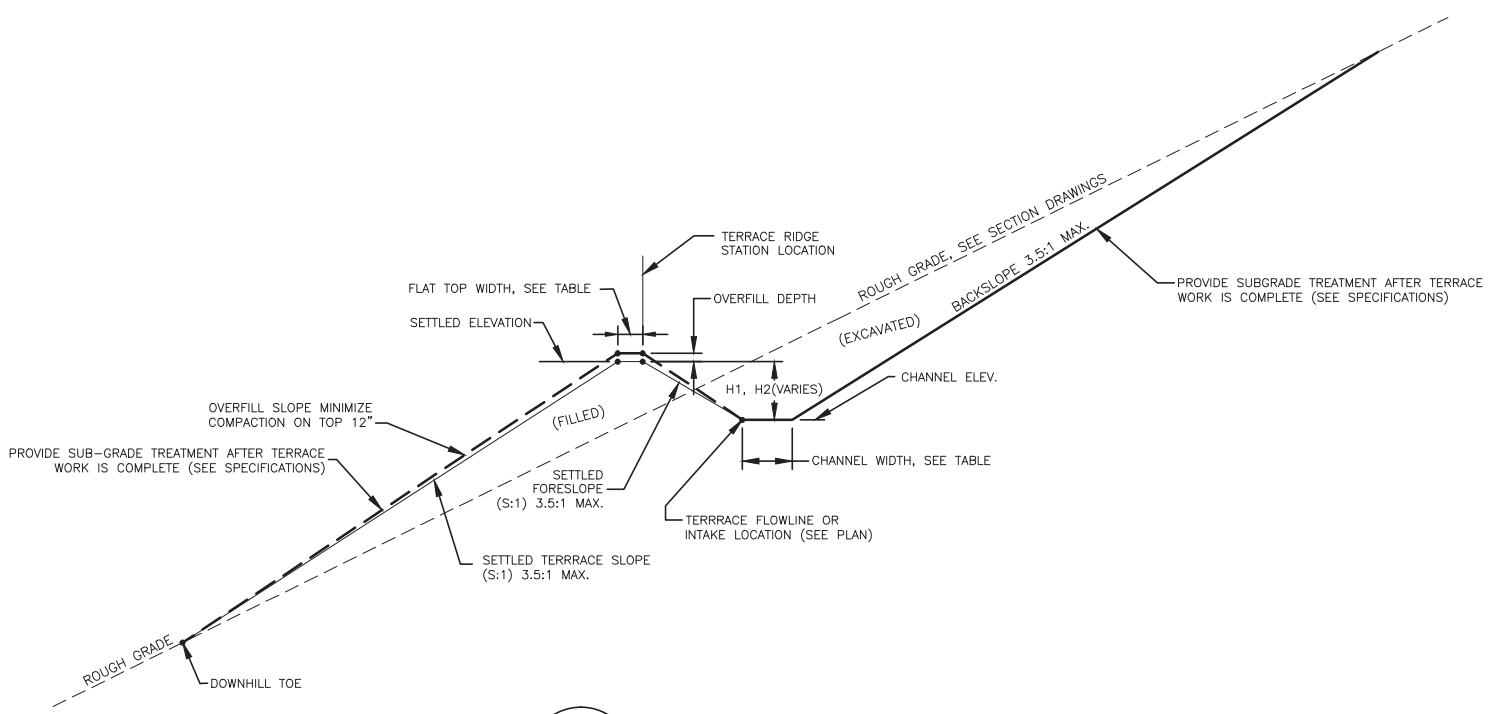
SCALE: NONE

TABLE: TERRACE INTAKES, PIPES & OUTLETS

		INTAKE RISER								TERRACE PIPE/TILE			OUTLET/END TREATMENT		
LOCATION I.D.	DWG. SHEET	DIA. (IN.)	INTAKE MATERIAL	HOLES QTY./FT	HOLE SIZE, (IN.)	CHANNEL LOW PT. ELEV(FT.)	RISER HEIGHT, (FT.)	BAR GUARD (Y/N)	SILT FENCE, L.F.	PIPE DIA., (IN.)	MIN. SLOPE, (%)	PIPE MATERIAL	RODENT GUARD	OUTLET TEE (Y/N)	DISCHARGE INTO
R1	9	8	PLASTIC	56	1	719.0	2.0	YES	40	8	5.0	PLASTIC	YES	NO	DITCH
R2	9	8	PLASTIC	56	1	713.0	2.0	YES	40	8	5.0	PLASTIC	YES	NO	DITCH

NOTES:

1. UNLESS OTHERWISE NOTED, TWO (2) STEEL FENCE POSTS SHALL BE INSTALLED ADJACENT TO AND ON OPPOSITE SIDES OF EACH TERRACE INTAKE RISER TO REINFORCE AGAINST OVERTURNING. COST OF FENCE POSTS SHALL BE CONSIDERED INCIDENTAL TO COST OF INSTALLING INTAKE RISER.
2. INSTALL PRESCRIBED LENGTH OF SILT FENCE AROUND EACH INTAKE IN THE FORM OF A SQUARE. EXAMPLE: FOR 40 L.F. OF SILT FENCE INSTALL A 10' X 10' SQUARE, WITH THE INTAKE IN THE CENTER. SEE PROJECT SPECIFICATIONS



2/10 EXCAVATED TERRACE DETAIL

SCALE: NONE

TABLE: EXCAVATED TERRACE INFORMATION

				LOW POINT			RIDGE				CHANNEL			HIGH POINT	
TERRACE I.D.	DWG. SHEET	FILL VOLUME (C.Y.)	MAX. SETTLED SLOPE (S:1)	ELEV. (FT.)	H1 HEIGHT (FT.)	OVERFILL DEPTH, (FT.)	SETTLED ELEV. (FT.)	LENGTH, (L.F.)	WIDTH, (FT.)	LEG	LENGTH (L.F.)	WIDTH (FT.)	MAX. SLOPE (%)	CHANNEL ELEV. (FT.)	H2 HEIGHT (FT.)
T1	9	803	3.5	719	3.0	0.5	+3	290	3	N	89	3	1.0	+0.9	2
										S	91	3	1.0	+0.9	2
T2	9	706	3.5	713	3.0	0.5	+3	301	3	N	88	3	1.0	+0.8	2
										S	94	3	1.0	+0.9	2

NOTES:

1. CHANNEL AND RIDGE ELEVATIONS ARE SHOWN RELATIVE TO THE LOW POINT ELEVATION OF THE TERRACE CHANNEL AT THE INTAKE RISER.
2. H1=HEIGHT FROM LOW POINT IN THE TERRACE CHANNEL AT THE INTAKE TO TOP OF THE SETTLED RIDGE.
3. H2=HEIGHT FROM HIGH POINT IN THE TERRACE CHANNEL AT THE ENDS TO TOP OF THE SETTLED RIDGE.
4. TERRACE RIDGES ARE UNIFORM (LEVEL) THROUGHOUT THE ENTIRE LENGTH.
5. RIDGE LENGTHS ARE MEASURED ALONG THE CENTERLINE OF THE RIDGE.
6. OVERFILL DEPTH IS A MINIMUM ADDITIONAL 12.5% OF H1 OR 6 INCHES, WHICHEVER IS GREATER UNLESS NOTED OTHERWISE.
7. CHANNEL LENGTHS ARE MEASURED ALONG THE STATION LOCATION LINE, IN THE CHANNEL BED, TOWARD THE HIGH POINT FROM THE LOW POINT LOCATION.
8. THE FILL VOLUME IS THE ESTIMATED SETTLED VOLUME OF SOIL OF THE TERRACE CONSTRUCTED ABOVE THE FINISHED GRADE NOT INCLUDING OVERFILL.

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SHAFER
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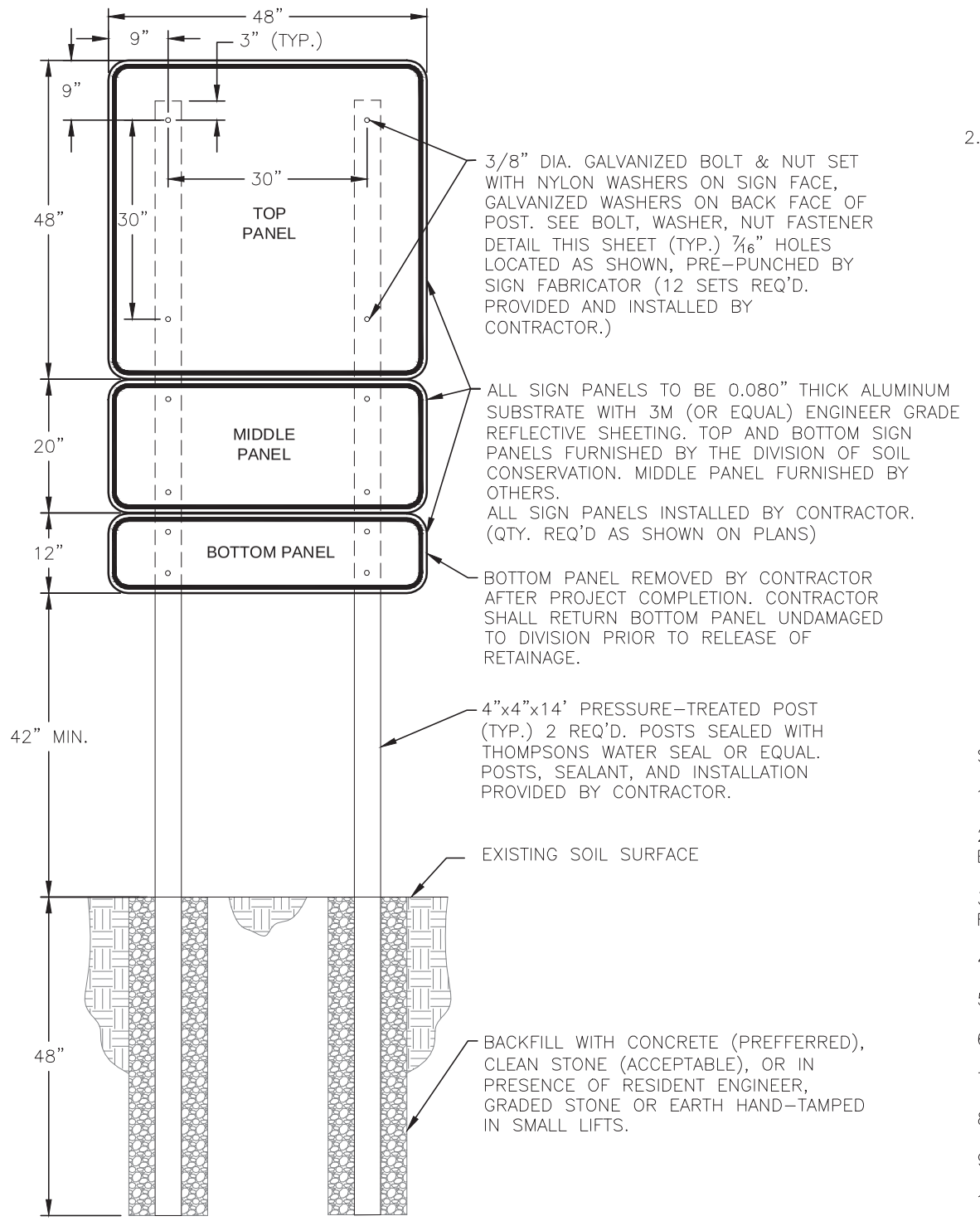
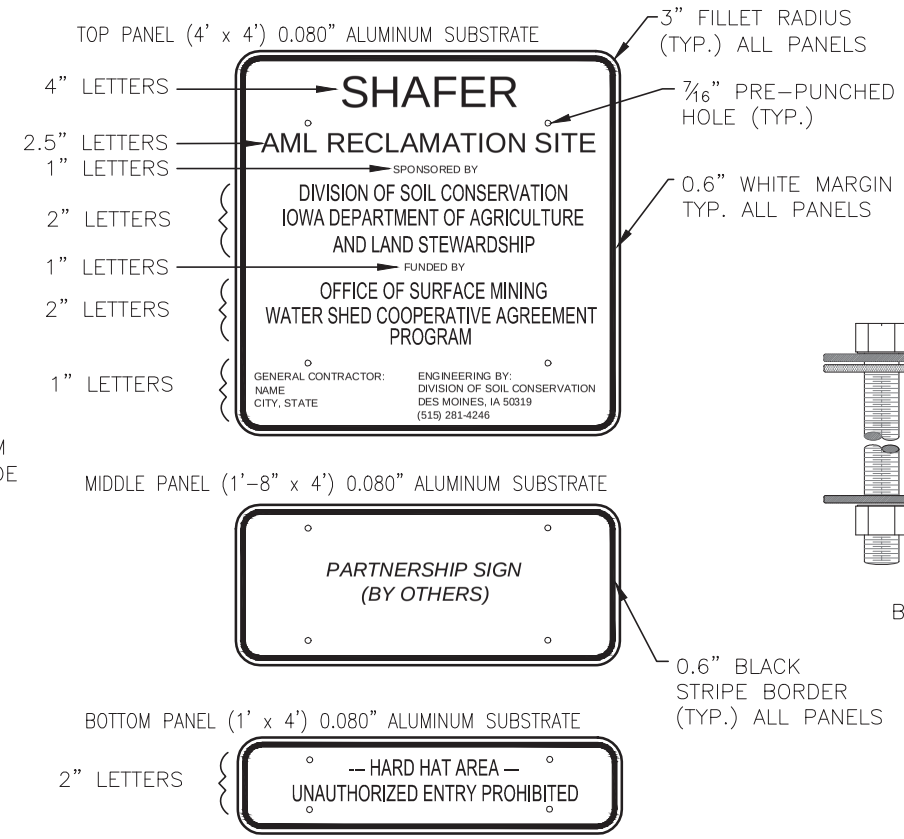
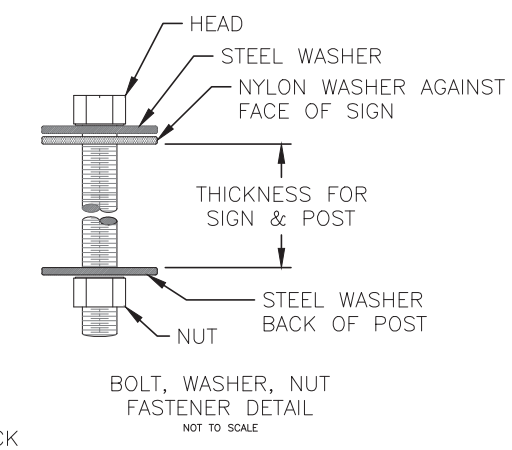
TYPICAL DETAILS & TABLES







SIGNAGE NOTES:

1. LETTERING AND SIGN FABRICATION SHALL BE PERFORMED BY A PROFESSIONAL SIGN MAKER.
2. SIGN PANELS SHALL BE COVERED WITH WHITE, 3M ENGINEER GRADE PRISMATIC REFLECTIVE SHEETING SERIES 3430, OR EQUAL, MEETING ASTM D4956 TYPE I. SHEETING SHALL BE APPLIED PER MANUFACTURER'S RECOMMENDATIONS.
3. LETTERING SHALL BE BLACK. INK FOR LETTERING SHALL BE 3M SERIES 880N OR EQUAL APPLIED PER MANUFACTURER'S RECOMMENDATIONS.
4. LETTERING AND LINE SPACING SHALL BE ADJUSTED TO AVOID INTERFERENCE WITH PRE-PUNCHED HOLES.
5. LETTERING AND SHEETING MUST HAVE A MINIMUM 5-YEAR PERFORMANCE WARRANTY AGAINST PEELING AND CRACKING.
6. ALL EXPOSED WOOD SHALL BE SEALED WITH THOMPSONS WATER SEAL OR EQUAL MEETING ASTM D-4446-08.
7. ALL HARDWARE SHALL BE GALVANIZED OR RUST RESISTANT.
8. NYLON AND STEEL WASHERS SHALL BE USED AS SHOWN ON THE BOLT, WASHER, NUT FASTENER DETAIL ABOVE.
9. CLEAR UTILITIES WITH IOWA ONE-CALL (800) 292-8989 BEFORE EXCAVATING FOR POSTS.
10. SECURE ENGINEERS APPROVAL FOR SIGN LOCATION BEFORE INSTALLATION.
11. COSTS FOR POSTS, HARDWARE, WOOD SEALANT AND SIGN INSTALLATION SHALL BE INCIDENTAL TO MOBILIZATION.
12. ONE (1) PROJECT SIGN IS REQUIRED, LOCATED AS SHOWN ON PLANS

3/11 PROJECT SIGN (1 REQ'D)

SCALE: 1"=2' (EXCLUDES BOLT DETAIL)

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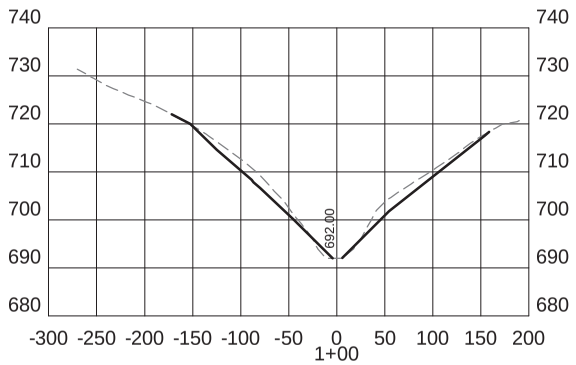
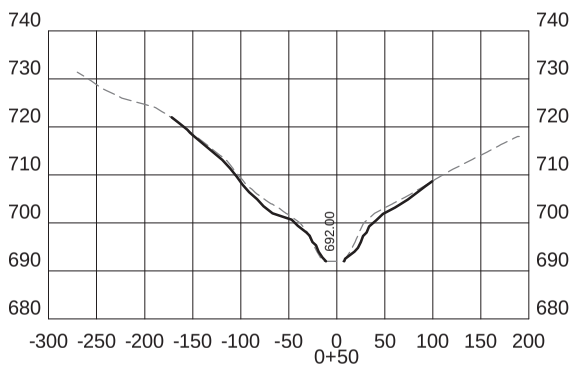
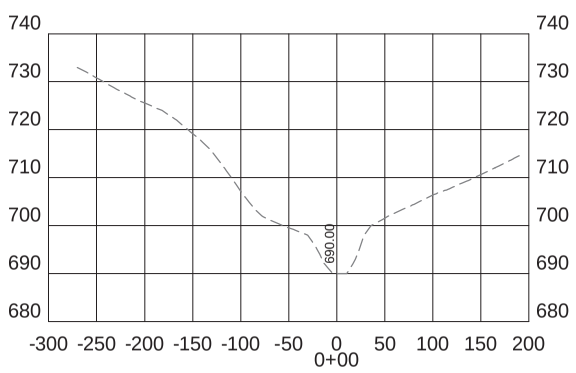
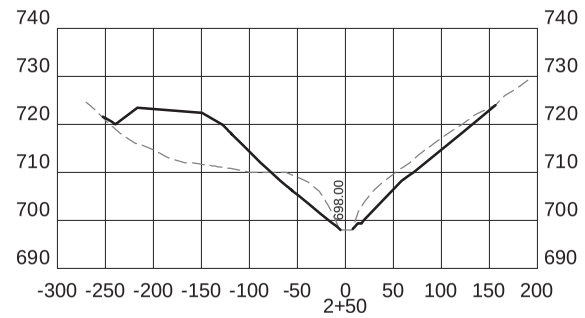
TYPICAL DETAILS
PROJECT SIGNAGE

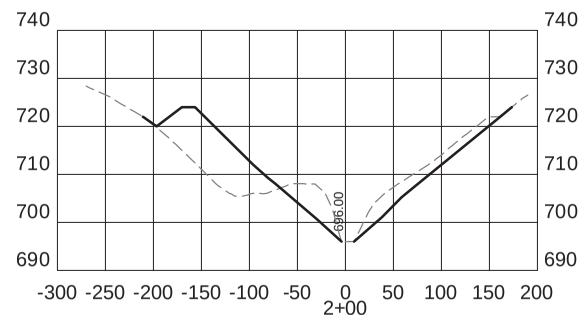
SHEET 11 OF 13

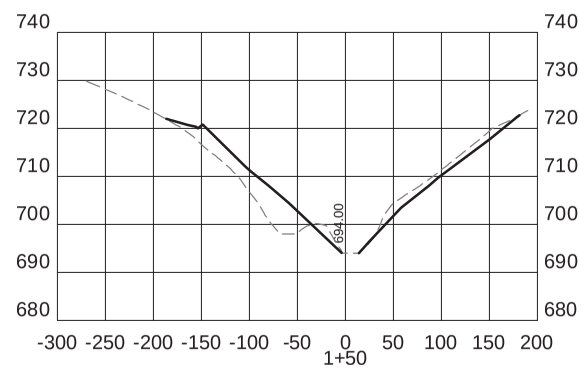


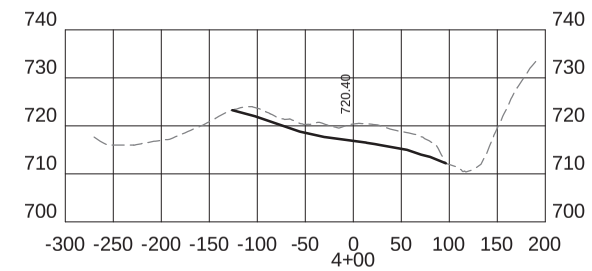


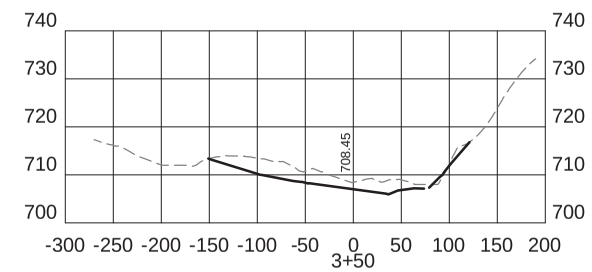


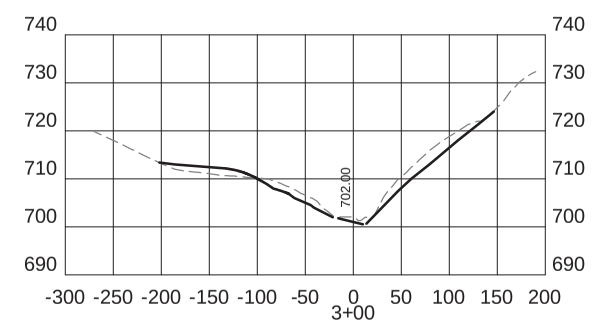


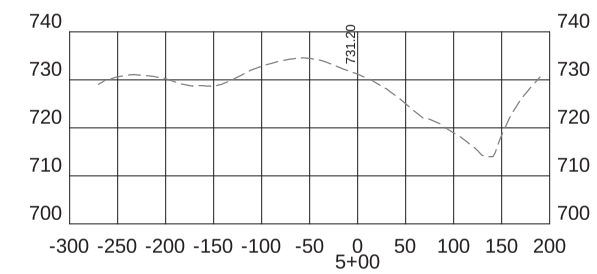


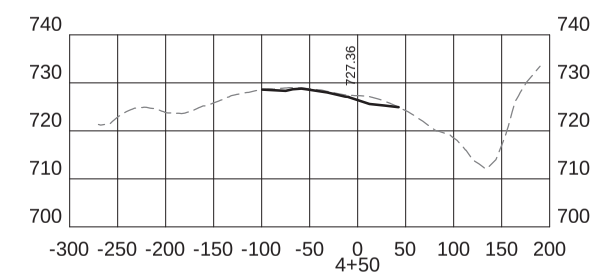












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CROSS SECTIONS
SOUTH - NORTH

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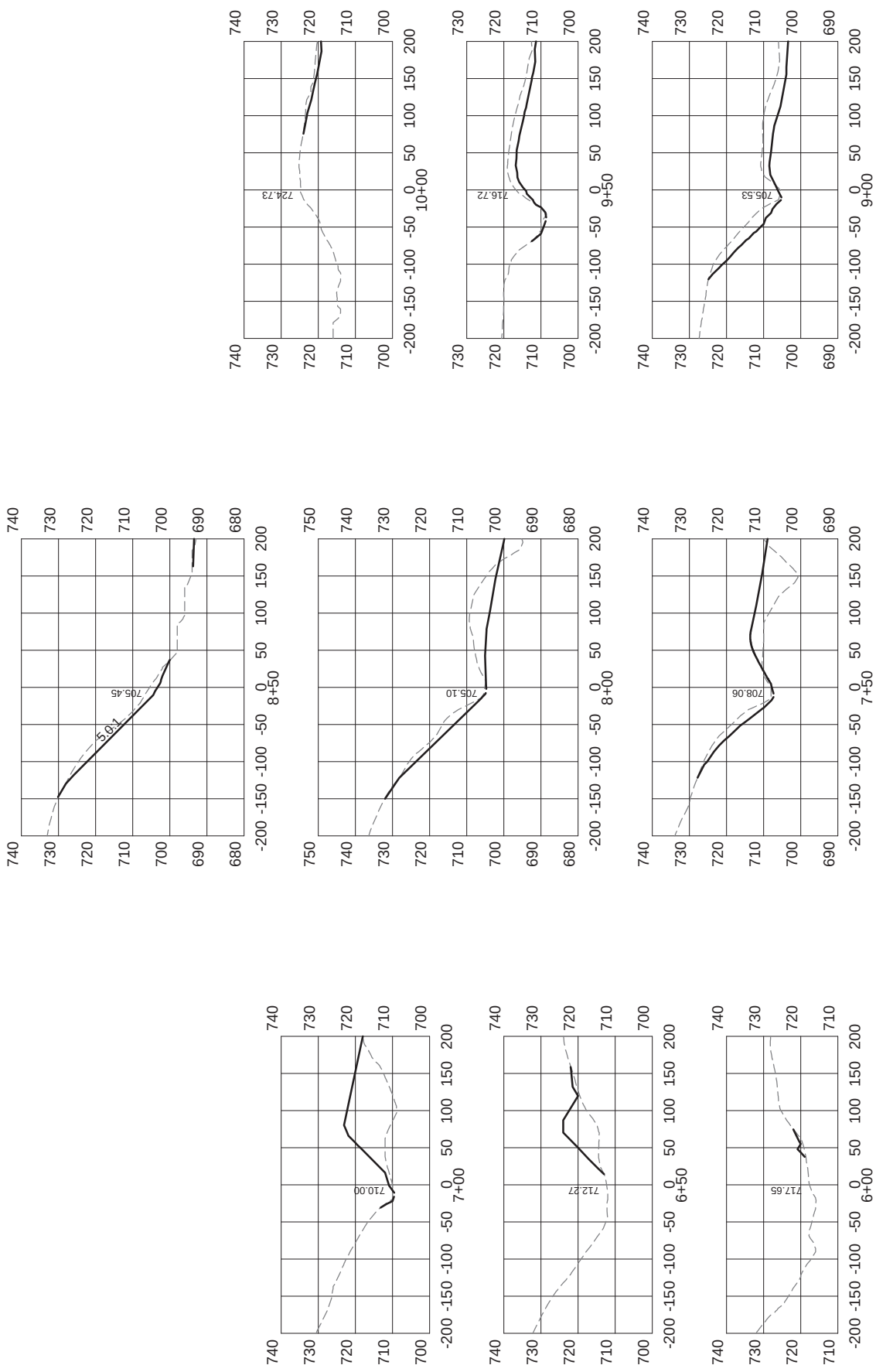

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		CROSS SECTIONS WEST - EAST	

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