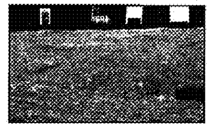
Disturbed Area Stabilization (With Mulching Only) Ds1



DEFINITION
Applying plant residues or other suitable materials, produced on the site if possible, to the soil surface.

PURPOSE
- To reduce runoff and erosion
- To conserve moisture
- To prevent surface compaction or crusting
- To control undesirable vegetation
- To modify soil temperature
- To increase biological activity in the soil

REQUIREMENT FOR REGULATORY COMPLIANCE
Mulch or temporary grassing shall be applied to all exposed areas within 14 days of disturbance. Mulch can be used as a singular erosion control device for up to six months, but it shall be applied at the appropriate depth, depending on the material used, anchored and have a continuous 90% cover or greater of the soil surface.

Maintenance shall be required to maintain appropriate depth and 90% cover. Temporary vegetation may be employed instead of mulch if the area will remain undisturbed for less than six months.

If any area will remain undisturbed for greater than six months, permanent vegetative techniques shall be employed. Refer to **Ds2 - Disturbed Area Stabilization (With Temporary Seeding), Ds3 - Disturbed Area Stabilization (With Permanent Seeding), and Ds4 - Disturbed Area Stabilization (With Sodding)**.

SPECIFICATIONS
Mulching Without Seeding
This standard applies to graded or cleared areas where seedings may not have a suitable growing season to produce an erosion retardant cover, but can be stabilized with a mulch cover.

Site Preparation
1. Grade to permit the use of equipment for applying and anchoring mulch.
2. Install needed erosion control measures as required such as dikes, diversions, berms, terraces and sediment barriers.
3. Loosen compact soil to a minimum depth of 3 inches.

Mulching Materials
Select one of the following materials and apply at the depth indicated:
1. Dry straw or hay shall be applied at a depth of 2 to 4 inches providing complete soil coverage. One advantage of this material is easy application.
2. Wood waste (chips, sawdust or bark) shall be applied at a depth of 2 to 3 inches. Organic material from the clearing stage of development should remain on site, be chipped, and applied as mulch. This method of mulching can greatly reduce erosion control costs.
3. Polyethylene film shall be secured over banks or stockpiled soil material for temporary protection. This material can be salvaged and re-used.

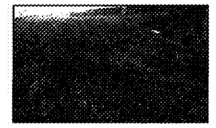
Applying Mulch
When mulch is used without seeding, mulch shall be applied to provide full coverage of the exposed area.
1. Dry straw or hay mulch and wood chips shall be applied uniformly by hand or by mechanical equipment.

2. If the area will eventually be covered with perennial vegetation, 20-30 pounds of nitrogen per acre in addition to the normal amount shall be applied to offset the uptake of nitrogen caused by the decomposition of the organic mulches.
3. Apply polyethylene film on exposed areas.

Anchoring Mulch
1. Straw or hay mulch can be pressed into the soil with a disk harrow with the disk set straight or with a special "packer disk." Disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disk should be dull enough not to cut the mulch but to press it into the soil leaving much of it in an erect position. Straw or hay mulch shall be anchored immediately after application.

   Straw or hay mulch spread with special blower-type equipment may be anchored. Tackifiers, binders and hydraulic mulch with tackifier specifically designed for tacking straw can be substituted for emulsified asphalt. Please refer to specification **Tac-Tackifiers**. Plastic mesh or netting with mesh no larger than one inch by one inch shall be installed according to manufacturer's specifications.
2. Netting of the appropriate size shall be used to anchor wood waste. Openings of the netting shall not be larger than the average size of the wood waste chips.
3. Polyethylene film shall be anchor trenched at the top as well as incrementally as necessary.

Disturbed Area Stabilization (With Temporary Seeding) Ds2



DEFINITION
The establishment of temporary vegetative cover with fast growing seedings for seasonal protection on disturbed or denuded areas.

PURPOSE
- To reduce runoff and sediment damage of down stream resources
- To protect the soil surface from erosion
- To improve wildlife habitat
- To improve aesthetics
- To improve tilth, infiltration and aeration as well as organic matter for permanent plantings

REQUIREMENT FOR REGULATORY COMPLIANCE
Mulch or temporary grassing shall be applied to all exposed areas within 14 days of disturbance. Temporary grassing, instead of mulch, can be applied to rough graded areas that will be exposed for less than six months. If an area is expected to be undisturbed for longer than six months, permanent perennial vegetation shall be used. If optimum planting conditions for temporary grassing is lacking, mulch can be used as a singular erosion control device for up to six months but it shall be applied at the appropriate depth, anchored, and have a continuous 90% cover or greater of the soil surface. Refer to specification **Ds1-Disturbed Area Stabilization (With Temporary Seeding)**.

CONDITIONS
Temporary vegetative measures should be coordinated with permanent measures to assure economical and effective stabilization. Most types of temporary vegetation are ideal to use as companion crops until the permanent vegetation is established. Note: Some species of temporary vegetation are not appropriate for companion crop plantings because of their potential to out-compete the desired species (e.g. annual ryegrass). Contact NRCS or the local SWCD for more information.

SPECIFICATIONS
Grading and Shaping
Excessive water run-off shall be reduced by properly designed and installed erosion control practices such as closed drains, ditches, dikes, diversions, sediment barriers and others.

No shaping or grading is required if slopes can be stabilized by hand-seeded vegetation or if hydraulic seeding equipment is to be used.

Seedbed Preparation
When a hydraulic seeder is used, seedbed preparation is not required. When using conventional or hand-seeding, seedbed preparation is not required if the soil material is loose and not sealed by rainfall.

When soil has been sealed by rainfall or consists of smooth cut slopes, the soil shall be pitted, trenched or otherwise scarified to provide a place for seed to lodge and germinate.

Lime and Fertilizer
Agricultural lime is required unless soil tests indicate otherwise. Apply agricultural lime at a rate determined by soil test for pH. Quick acting lime should be incorporated to modify pH during the germination period. Bio stimulants should also be considered when there is less than 3% organic matter in the soil. Graded areas require lime application. Soils must be tested to determine required amounts of fertilizer and amendments. Fertilizer should be applied before land preparation and incorporated with a disc, ripper, or chisel. On slopes too steep for, or inaccessible to equipment, fertilizer shall be hydraulically applied, preferably in the first pass with seed and some hydraulic mulch, then topped with the remaining required application rate.

Seeding
Select a grass or grass-legume mixture suitable to the area and season of the year. Seed shall be applied uniformly by hand, cyclone seeder, drill, culti-packer-seeder, or hydraulic seeder (slurry including seed and fertilizer). Drill or cultipacker seeders should normally place seed one quarter to one-half inch deep. Appropriate depth of planting is ten times the seed diameter. Soil should be "raked" lightly to cover seed with soil if seeded by hand. See Table 6-4.1

Mulching
Temporary vegetation can, in most cases, be established without the use of mulch, provided there is little to no erosion potential. However, the use of mulch can often accelerate and enhance germination and vegetation establishment. Mulch without seeding should be considered for short term protection. Refer to **Ds1 - Disturbed Area Stabilization (With Mulching Only)**.

Irrigation
During times of drought, water shall be applied at a rate not causing runoff and erosion. The soil shall be thoroughly wetted to a depth that will insure germination of the seed. Subsequent applications should be made when needed.

Dust Control on Disturbed Areas Du

DEFINITION
Controlling surface and air movement of dust on construction sites, roads, and demolition sites.

PURPOSE
- To prevent surface and air movement of dust from exposed soil surfaces.
- To reduce the presence of airborne substances that may be harmful or injurious to human health, welfare, or safety, or to animals or plant life.

CONDITIONS
This practice is applicable to areas subject to surface and air movement of dust where on and off-site damage may occur without treatment.

METHOD AND MATERIALS

A. Temporary Methods

Mulches. See standard **Ds1 - Disturbed Area Stabilization (With Mulching Only)**. Synthetic resins may be used instead of asphalt to bind mulch material. Refer to specification **Tac - Tackifiers**. Resins should be used according to manufacturer's recommendations.

Vegetative Cover. See specification **Ds2 - Disturbed Area Stabilization (With Temporary Seeding)**.

Spray-on adhesives. These are used on mineral soils (not effective on muck soils). Keep traffic off these areas. Refer to specification **Tac - Tackifiers**.

Tillage. This practice is designed to roughen and bring clods to the surface. It is an emergency measure that should be used before wind erosion starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and similar plows are examples of equipment that may produce the desired effect.

Irrigation. This is generally done as an emergency treatment. Site is sprinkled with water until the surface is wet. Repeat as needed.

Barriers. Solid board fences, snowfences, burlap fences, crate walls, bales of hay and similar material can be used to control air currents and soil blowing. Barriers placed at right angles to prevailing currents at intervals of about 15 times their height are effective in controlling wind erosion.

Calcium Chloride. Apply at rate that will keep surface moist. May need retreatment.

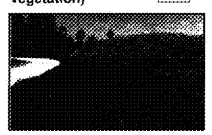
B. Permanent Methods

Permanent Vegetation. See specification **Ds3 -Disturbed Area Stabilization (With Permanent Vegetation)**. Existing trees and large shrubs may afford valuable protection if left in place.

Topsoiling. This entails covering the surface with less erosive soil material. See specification **Tp - Topsoiling**.

Stone. Cover surface with crushed stone or coarse gravel. See specification **Cr-Construction Road Stabilization**.

Disturbed Area Stabilization (With Permanent Vegetation) Ds3



DEFINITION
The planting of perennial vegetation such as trees, shrubs, vines, grasses, or legumes on exposed areas for final permanent stabilization. Permanent perennial vegetation shall be used to achieve final stabilization.

PURPOSE
- To protect the soil surface from erosion
- To reduce damage from sediment and runoff to down-stream areas
- To improve wildlife habitat and visual resources
- To improve aesthetics

REQUIREMENT FOR REGULATORY COMPLIANCE
This practice shall be applied immediately to rough graded areas that will be undisturbed for longer than six months. This practice or sodding shall be applied immediately to all areas at final grade. **Final Stabilization** means that all soil disturbing activities at the site have been completed, and that for unpaved areas and areas not covered by permanent structures and areas located outside the waste disposal limits of a landfill cell that has been certified by the GA EPD for waste disposal, 100% of the soil surface is uniformly covered in permanent vegetation with a density of 70% or greater, or landscaped according to the Plan (uniformly covered with landscaping materials in planned landscaped areas), or equivalent permanent stabilization measures.

Permanent vegetation shall consist of: planted trees, shrubs, perennial vines; or a crop of perennial vegetation appropriate for the region, such that within the growing season a 70% coverage by perennial vegetation shall be achieved. Final stabilization applies to each phase of construction. For linear construction projects on land used for agricultural or silvicultural purposes, final stabilization may be accomplished by stabilizing the disturbed land for its agricultural or silvicultural use. Until this standard is satisfied and permanent control measures and facilities are operational, interim stabilization measures and temporary erosion and sedimentation control measures shall not be removed.

CONDITIONS
Permanent perennial vegetation is used to provide a protective cover for exposed areas including cuts, fills, dams, and other denuded areas.

PLANNING CONSIDERATIONS
1. Use conventional planting methods where possible.
2. When mixed plantings are done during marginal planting periods, companion crops shall be used.
3. No-till planting is effective when planting is done following a summer or winter annual cover crop. Sericea lespedeza planted no-till into stands of rye is an excellent procedure.
4. Block sod provides immediate cover. It is especially effective in controlling erosion adjacent to concrete flumes and other structures. Refer to Specification **Ds4-Disturbed Area Stabilization (With Sodding)**.
5. Irrigation should be used when the soil is dry or when summer plantings are done.
6. Low maintenance plants, as well as natives, should be used to ensure long-lasting erosion control.
7. Mowing should not be performed during the quail nesting season (May to September).
8. Wildlife plantings should be included in critical area plantings.

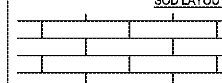
Table 6-5.1. Fertilizer Requirements Ds2 Ds3 Ds4

TYPE OF SPECIES	YEAR	ANALYSIS OR EQUIVALENT N-P-K	RATE	N TOP DRESSING RATE
1. Cool season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 lbs./ac. 1000 lbs./ac. 400 lbs./ac.	50-100 lbs./ac. 1/2/ — 30
2. Cool season grasses and legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 lbs./ac. 1000 lbs./ac. 400 lbs./ac.	0-50 lbs./ac. 1/ — —
3. Ground covers	First Second Maintenance	10-10-10 10-10-10 10-10-10	1300 lbs./ac. 3/ 1300 lbs./ac. 3/ 1100 lbs./ac.	— — —
4. Pine seedlings	First	20-10-5	one 21-gram pellet per seedling placed in the closing hole	—
5. Shrub Lespedeza	First Maintenance	0-10-10 0-10-10	700 lbs./ac. 700 lbs./ac. 4/	—
6. Temporary cover crops seeded alone	First	10-10-10	500 lbs./ac.	30 lbs./ac. 5/
7. Warm season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 lbs./ac. 800 lbs./ac. 400 lbs./ac.	50-100 lbs./ac. 2/6/ 50-100 lbs./ac. 2/ 30 lbs./ac.
8. Warm season grasses and legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 lbs./ac. 1000 lbs./ac. 400 lbs./ac.	50 lbs./ac./6/

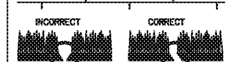
1/ Apply in spring following seeding.
2/ Apply in split applications when high rates are used.
3/ Apply in 3 split applications.
4/ Apply when plants are pruned.
5/ Apply to grass species only.
6/ Apply when plants grow to a height of 2 to 4 inches.

SOD MAINTENANCE AND INSTALLATION

SOD LAYOUT AND PREPARATION



LAY SOD IN A STAGGERED PATTERN. BUTT THE STRIPS TIGHTLY AGAINST EACH OTHER. DO NOT LEAVE SPACES AND DO NOT OVERLAP. A SHARPENED MASON'S TROWEL IS A HANDY TOOL FOR TUCKING DOWN THE ENDS AND TRIMMING PIECES.



BUTTING: ANGLED ENDS CAUSED BY THE AUTOMATIC SOD CUTTER MUST BE MATCHED CORRECTLY.

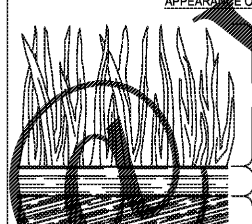
DIRECTIONS FOR INITIAL MAINTENANCE

Step 1. ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE SOIL.

Step 2. WATER TO A DEPTH OF 4" AS NEEDED. WATER WELL AS SOON AS THE SOD IS LAID.

Step 3. MOW WHEN THE SOD IS ESTABLISHED --- IN 2-3 WEEKS. SET THE MOWER HIGH (2"-3").

APPEARANCE OF GOOD SOD



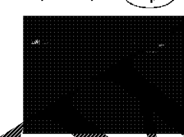
Ds4

SHOOTS OR GRASS BLADES: GRASS SHOULD BE GREEN AND HEALTHY, MOWED AT A 2"-3" CUTTING HEIGHT.

THATCH: GRASS CUPPINGS AND DEAD LEAVES (UP TO 1/2" THICK).

ROOT ZONE: SOIL AND ROOTS. SHOULD BE 1/2"-3/4" THICK WITH DENSE ROOT MAT FOR STRENGTH.

Topsoiling Tp



DEFINITION
Stripping off the more fertile top soil, storing it, then spreading it over the disturbed area after completion of construction activities.

PURPOSE
To provide a suitable soil medium for vegetative growth on areas where other measures will not produce or maintain a desirable stand.

CONDITIONS
This practice is recommended for sites of 2:1 or flatter slopes where:
1. The texture of the exposed subsoil or parent material is not suitable to produce adequate vegetative growth.
2. The soil material is so shallow that the rooting zone is not deep enough to support plants with continuing supplies of moisture and food.
3. The soil to be vegetated contains material toxic to plant growth.

CONSTRUCTION SPECIFICATIONS
Materials
Topsoil should be friable and loamy, free of debris, objectionable weeds and stones and contain no toxic substance that may be harmful to plant growth. A pH range of 5.0-7.5 is acceptable. Soluble salts should not exceed 500 ppm.

Testing
Field exploration should be made to determine whether the quantity and quality of surface soil justifies stripping.

Stripping
Stripping should be confined to the immediate construction area.

A 4 to 6 inch stripping depth is common, but may vary depending on the particular soil.

Topsoil pH
If pH value is less than 6.0, lime shall be applied and incorporated with the topsoil to adjust the pH to 6.5 or higher. Topsoils containing soluble salts greater than 500 parts per million shall not be used.

Stockpiles
The location of topsoil stockpiles should not obstruct natural drainage or cause off-site environmental damage.

Stabilization
Stockpiles shall be contained by sediment barriers to prevent sedimentation on adjacent areas. Stockpiles shall be stabilized in accordance with specifications **Ds1 and Ds2 - Disturbed Area Stabilization (With Mulching) and (With Temporary Grassing)**, respectively, or **Tac-Tackifiers.**

Site Preparation
(Where topsoil is to be added)

Topsoiling - When topsoiling, maintain needed erosion control practices such as diversions, grade stabilization structures, berms, dikes, level spreaders, waterways, sediment basins, etc.

Grading - Grades on the areas to be topsoiled that have been previously established shall be maintained.

Liming - Soil tests should be used to determine the pH of the soil. Where the pH of the subsoil is 5.0 or less or composed of heavy clays, agricultural limestone shall be spread at the rate of 100 pounds per 1,000 square feet. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedure.

Bonding - Use one of the following methods to insure bonding of topsoil and subsoil:
1. Tilling. After the areas to be topsoiled have

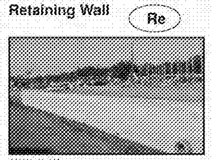
been brought to grade, and immediately prior to dumping and spreading the topsoil, the subgrade shall be loosened by discing or scarifying to a depth of at least 3 inches to permit bonding of the topsoil to the subsoil.
2. Tracking. Passing a bulldozer over the entire surface area of the slope to leave horizontal depressions.

Applying Topsoil
1. Topsoil should be handled only when it is dry enough to work without damaging soil structure.
2. A uniform application of 5 inches (unsettled) is recommended, but may be adjusted at the discretion of the design professional.

Table 6-37.1. Cubic Yards Of Topsoil Required For Application To Various Depths

Depth (Inches)	Per 1,000 Square Feet	Per Acre
1	3.1	134
2	6.2	268
3	9.3	403
4	12.4	537
5	15.5	672
6	18.6	806

Retaining Wall Re



DEFINITION
A wall constructed of one or more of the following: concrete masonry, reinforced concrete cribbing, treated timbers, steel pilings, gabions, stone drywall, rock riprap, etc.

PURPOSE
To assist in the stabilization of cut or fill slopes where stable slopes are not attainable without the use of the wall.

CONDITIONS
Use in conjunction with cut or fill slopes that, because of space limitations or unstable material, do not allow the stable slope criteria listed above, e.g. cuts into steep hillsides on small lots or cuts into hillsides behind shopping centers to provide loading space.

DESIGN CRITERIA
General
The design of a retaining wall is a complicated process. Many factors must be taken into account such as [illegible] forces [illegible] within the wall, allowable [illegible] and minimum thickness. Other considerations [illegible] foundation design with respect to footing, bearing values, soils and footing dimensions. Additional design factors are safety hazards, surcharge and subsurface drainage and appearance.

Each situation requires a special design that is within the capabilities of the design professional.

Consideration should be given to all of the alternative materials with regard to construction of the wall. Some methods are:
1. Concrete masonry
2. Concrete cribbing
3. Gabions
4. Steel piling
5. Stone drywall
6. Rock riprap, etc.
7. Treated timbers
8. Geotextile wrapped-face wall
9. Geotextile reinforced steep slopes

CRUSHED STONE CONSTRUCTION EXIT

EXIT DIAGRAM

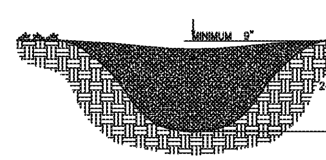
ENTRANCE ELEVATION

Co

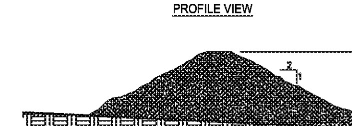
NOTES:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%.
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

STONE CHECK DAM

CROSS SECTION



PROFILE VIEW



NOTES:
1. CHECK DAMS ARE TO BE USED ONLY IN SMALL OPEN CHANNELS (THEY ARE NOT TO BE USED IN LIVE STREAMS).
2. THE DRAINAGE AREA FOR STONE CHECK DAMS SHALL NOT EXCEED TWO ACRES.
3. THE CENTER OF THE CHECK DAM MUST BE AT LEAST 9 INCHES LOWER THAN THE OUTER EDGES.
4. THE DAM HEIGHT SHOULD BE A MAXIMUM OF 2 FEET FROM CENTER TO RIM EDGE.
5. THE SIDE SLOPES OF THE CHECK DAM SHALL NOT EXCEED A 2:1 SLOPE.
6. GEOTEXTILE SHALL BE USED TO PREVENT THE MITIGATION OF SUBGRADE SOIL PARTICLES INTO THE STONES (REFER TO AASHTO M288-96, SECTION 7.3, TABLE 3).

Cd-8

Diversion Ditch #1
TO BE SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN
1. Q₁₀ in the channel/ditch that the check dam is being used in: 10.58 cfs
2. Above 2.0 cfs: Yes X No ____
3. If Yes, list BMP being used in conjunction with check dams: MATTING BLANKET

Cd-8

(XX) REPRESENTS NOTE/FEATURE WHICH CORRESPONDS WITH THE ES&PC PLAN CHECKLIST

EROSION SEDIMENTATION, AND POLLUTION CONTROL DETAILS

OUT TO BID

(08)

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COVINGTON, GA
BY: PREMIER HOLDINGS OF GEORGIA, LLC
MONTGOMERY, AL

REVISIONS	BY

DRAWN BY: SCR
CHECKED BY: THH
DATE: (08) 06/27/2018
SCALE: NO SCALE
JOB No. 17-CE-015
SHEET NUMBER
D-4A

17-CE-015 DETAILS.DWG

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